MINING CONGRESS TOURNAL

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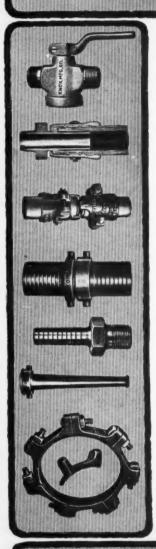
Contributors:

Hon. Herbert Hoover, Hon. Tasker L. Oddie, Hon. James E. Watson, Ralph Esarey, W. H. Lindsey, J. G. Bradley, Sidney J. Jennings, P. P. Campbell, Gilbert H. Montague, Walter Gordon Merritt A. Scott Thompson, Henry B. Fernald, Julian D. Conover, Scott Turner, W. J. Borries, H. M. Childs, G. B. Southward.

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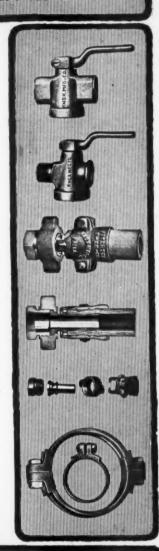


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Now—Successful Coal Separation by Wet Process

The Menzies Hydro Separator (Bituminum sales rights recently acquired by us) is the first successful device made to clean and separate coal automatically in sizes from $4\frac{1}{2}$ " to 5" round hole.

This separator, using water as the cleaning medium, and hydraulic pressure as the separating medium, will handle from 25 to 40 tons per hour, depending upon the size and quality of clean coal desired, placing at your disposal a unit that entirely eliminates Egg and Nut picking table men.

When used in conjunction with the Arms Air Concentrating Tables for handling finer sizes, this method provides a complete cleaning and separating plant of highest efficiency for all sizes, Egg to Slack. Operated with a minimum of labor, it is low in first, maintenance and operating cost, and in horsepower consumed.

We will gladly run a test on your coal in our testing plant (shown above) at Harvey, Illinois, or we will install these units in existing tipples, your final acceptance to be based on performance. May we send you a copy of Bulletin No. 102.

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The MINING CONGRESS JOURNAL

VOLUME 14

JANUARY, 1928

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PRACTICAL OPERATING MEN'S DEPARTMENT

COAL

Prospecting Strip Coal Areas

METATO

Safety First at the Bunker Hill Mine

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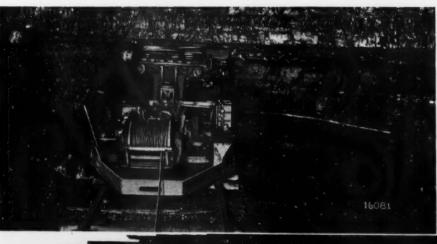
J. R. HURLBURT, Field Representative

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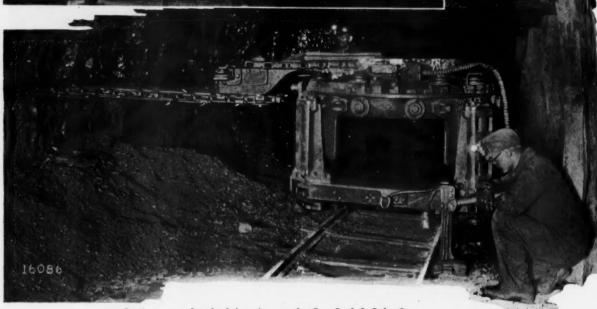
2 Men Shoulder 80 Tons



Jeffrey Arcwalls Cutting



Fifty-five tons brought down in this cut.



Cutting a two hundred foot face at the Gay Coal & Coke Co.

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Chicago

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Eac tons load

sam 1,000 The that

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Gay, one s

Denver Pittsburg!

Out Rock

HERE is the Jeffrey Arcwall taking out a slate band in a 9-foot seam at the Amherstdale Coal Company's Mine No. 2, Amherstdale, West Virginia.

This Arcwall cuts a $5\frac{1}{2}$ -inch kerf in the coal immediately below the slate. After the bug dust is loaded out, the slate is then loaded out by day men, leaving all clean coal for the miner.

Each of the three Arcwalls used produces 700 tons per shift by this method of cutting and loading.

CUTTING on the long face, this Jeffrey Arcwall has been double-shifted 20 hours per day in a rock seam for two years, using the same cutter chain and armatures and averaging 1,000 tons of coal a day.

The coal is six feet high, divided by a rock seam that varies from nine to thirty inches in thickness. All of the rock is cut out, the cutter chain bits being arranged for a nine-inch kerf, making parallel cuts when needed.

This Jeffrey Arcwall has given seven years' service at the Gay Coal & Coke Company of Mt. Gay, West Virginia, and is still going strong. In one shift it recently cut out 1,200 feet of rock.

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958-99 North Fourth St., Columbus, Ohio

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JEFFREY

Easier and Loading Costs

Using a Jeffrey Pit Car Loader in room-and-pillar mining adds 20 feet to the length of the loader's shovel and enables him to more than double his tonnage loaded per shift.

As the photograph shows, the Jeffrey Pit Car Loader is a conveyor mounted on a self-propelled truck, its loading end resting on the bottom so that the coal does not have to be lifted onto it. Three men can keep it working at a paying capacity. If an extension to the loading end is used, the coal can be shot down upon it and a large part of it loaded without shovels.

The Pit Car Loader also reduces the cost of mine maintenance. Each room can be shot and loaded out two or three times during the shift, so that fewer rooms and entries need be worked at once, cutting the cost of ventilation, bratticing, wiring, track laying, timbering, pumping and inspection.

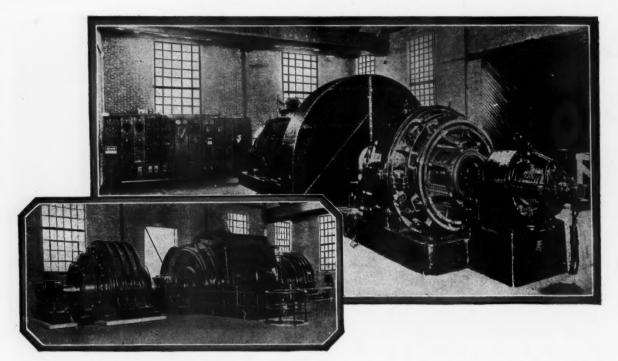
In low coal where loaders are cramped in their work the Pit Car Loader will do away with the effort of heaving the coal into the mine car where there is only a few inches clearance under the roof. The loader needs merely to shovel the coal onto the foot of the conveyor. This improvement of working conditions will improve the general efficiency of your man-power.

Catalog No. 425-A describes in detail Jeffrey Conveying Equipment for coal mines.

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Arc Welding Sets Automatic Substatio Babbitts and Alloys Circuit Breakers Electric Babbitt Pots Electric Bake Ovens Flood Lights Gathering Reel Loco-motives Hoist Motors Insulating Materials Lightning Arresters Line Material Linestart Motors Mazda Lamps Mine Illumination Motor Generators Permissible Mc Rail Bonds Room Hoist Motors Safety Switches Space Heaters Steam Turbines Squirrel Cage Motors Synchronous Motors
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The Most Powerful Coal Hoist In the world

HOISTING 14,400 tons of coal in eight hours—doubling a high daily production—is the capacity of the main hoist in the New Orient Mine.

The hoist is not only the largest in the world, but the equipment throughout the entire mine represents the most advanced development in mechanization with electrification. It is a striking testimonial to the performance records of Westinghouse motors and control, and shows the many advantages of undivided responsibility—advantages that make for lower operating costs, flexibility and safety, and increased production.

Westinghouse foresaw the development of the electric drive in the coal industry, and Westinghouse engineering service holds a notable record of achievements in every phase of operation. With this intimate knowledge of conditions and with broad experience, Westinghouse is prepared to serve in any electrical capacity.

A request for details will bring you complete information concerning the characteristics of equipment that will prove a highly satisfactory purchase.

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but we found a simple remedy!

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fy rust resisting pipe where it is clearly needed, and cheaper pipe where he can do so without risk.

When it comes to small sizes, however, the problem is more difficult. The comparative immunity to corrosion that he finds in certain pipe lines of larger size, he does not find in the smaller sizes, to anything like the same degree. Therefore discrimination is less easy, even on paper. Still further, even if he does direct that two kinds of pipe be used, it is only by great vigilance that he can make sure

the right pipe gets to the right part of the plant. Confusion is almost inevitable, with two kinds of pipe of the same small size, and looking so much alike as pipe materials do.

There is a simple and sensible solution which public service corporations and other large pipe users are adopting more and more. It is this:

For pipe of large sizes, choose your material according to the conditions to which it will be exposed in use. This is both logical and practical.

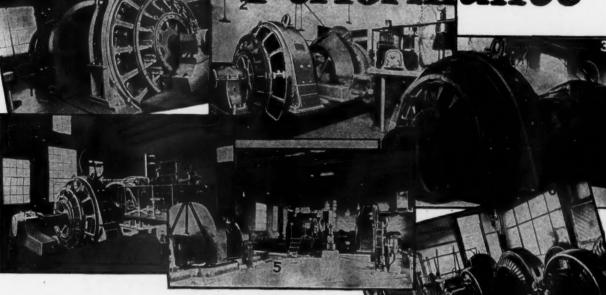
For pipe of small sizes—two inches and under, specify genuine wrought iron—preferably Byers—throughout. It gives a security against pipe failures and a relief from perplexity that is worth many times the trifling extra cost.

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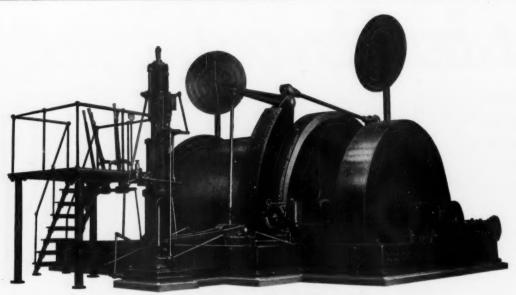
COMPANY, SCHENECTADY,

that builds confidence

These illustrations indicate the preference for G-E Motorized Power in mine hoist service and the confidence in its performance shown by representative coal mining companies. The majority of electric hoists in coal and metal mines are G-E equipped.



ELES CTRECTES



Oliver Type Balanced Single Drum Hoist

Oliver Iron Mining Co. Has Again Selected Allis-Chalmers Electric Hoists

for their Geneva and Pioneer Mines Electrification

Contract includes Three Balanced Single Drum Hoists

The Geneva Ore Hoist Will Be the Largest Hoist of Its Type In the United States

PRINCIPAL DATA ON THESE HOISTS:

	Geneva Ore Hoist	Pioneer Ore Hoist	Pioneer Man Hoist
Rope Pull	51,700 lbs.	31,680 lbs.	26,750 lbs.
Rope Speed Feet per Min.	1500	1800	1000
Rope Capacity One Layer	4200′-13⁄4″	2800′-13⁄8″	2800'-13/8"
Diameter Drum	12'-0"	12′-0″	12'-0"
Face Drum	17'-6"	9'-0''	9'-0"
Parallel Motion Post Brake	15'-0" dia. 18" face	13'-0" dia. 14" face	13'-0" dia. 14" face
Drum Shaft Diameter	23"	18"	18"

All have a single reduction of Falk Gear and latest safety protection. They will be driven by induction motors. The hoists are designed for maximum efficiency and safe operation.

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What the Men at the Mines Like about Goodman Shortwalls—

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"They're Easy to Handle."

The Electricians:

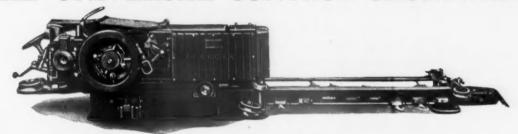
"They're Easy to Get At."

The Superintendents:

"We can always Get Runners for our Goodmans"

CHORUS: "THEY CUT LOTS of COAL!"

THE UNIVERSAL CONTROL SHORTWALL

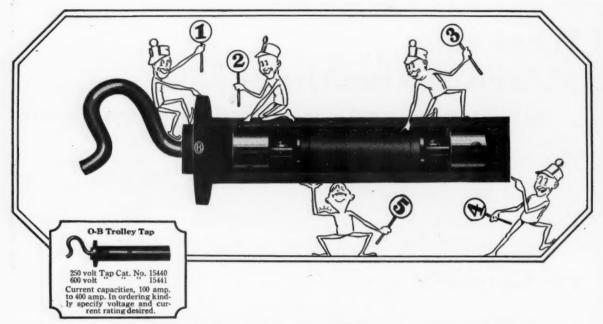


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COUNT

Approximately 500(1¼" x 8") cartridges per 100 pounds.

STRENGTH & Equivalent to the same volume of Pellet Powder.

FUMES & Much better than Black or Pellet Powder.

COST ∞ Less than same volume of Black or Pellet Powder.

GIVES CUSHIONED BLASTING EFFECT WITHOUT AIR SPACING

HERE is an entirely new type of explosive. It has the advantages of Black or Pellet Powder without some of their H E disadvantages, and it costs less for the same volume than either of them. Hercoal-F comes in cartridges. It is much less inflammable than Black or Pellet Powder and its fumes are much less objectionable. Because of its bulkiness and other physical characteristics, Hercoal-F gives the true cushioned blasting effect without the use of air spacing, or compressible stemming. Where suitable for the work it produces the maximum percentage of lump coal at a lower cost than any other explosive. Hercoal-F has passed the United States Bureau of Mines Permissible tests.

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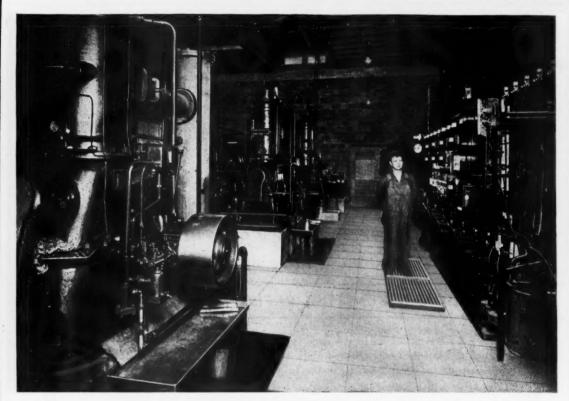
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Please send me additional information regarding Hereoal-F.	
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"I'm Strong for Nonpareil Diesel Oil"

Read what J. L. Prier, Superintendent of Light and Water Hugoton, Kansas, Has to Say:

"A few years ago we began using Nonpareil Diesel Oil in our three Fairbanks-Morse engines.

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One of the Greatest Values We Have Ever Offered ⋄ They Save 10% to 30% By Replacing The Present Extras and Gelatins ⋄ ⋄

The number of 1½" x 8" cartridges to the hundred pounds ranges from approximately 240 for Hercules Extra No. 2 to 350 for Hercules Extra No. 7. To compare Hercules Extras, the nearest grades are shown at right.

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\text{Extra No. 3 is nearest grade to } \begin{cases} 40\%-50\% Extra L. F. \text{ or } 35\% to 40\% Gelatin L. F. \\
\text{Extra No. 4 is nearest grade to } \begin{cases} 35\%-40\% Extra L. F. \text{ or } 25\% to 30\% Gelatin L. F. \end{cases}

Extra No. 5 is nearest grade to 30% Extra L. F.

Extra No. 6 is nearest grade to 25% Extra L. F.

Extra No. 7 is nearest grade to 20% Extra L. F.

WE HAVE RECENTLY DEVELOPED AND ARE OFFERING A NEW SERIES OF EXPLOSIVES—The Hercules Extras, Nos. 2 to 7—that represent greater explosive value per dollar than any of our other explosives. These powders are not to be confused with the well-known Extra L. F. Grades. They are destined to replace the Specials and largely to supplant the old established Extras, and to some extent, the lower strength Gelatins, because they will perform as much or more work at less cost.

All of these new Hercules Extras have a weight strength of approximately 70%. The different cartridge counts of these powders make available cartridge strengths from 20% in Hercules Extra No. 7 to 50% in Hercules Extra No. 2. Where conditions are favorable the new Hercules Extras will replace the Gelatins up to and including 40%, and the Extra L. F. Grades. The saving in explosives cost ranges from 10% to 30%.

The New Hercules Extras, No. 2 to No. 7, are similar to the Hercules Specials but stronger by weight. They have been thoroughly tested in the field and are being successfully used at considerable savings for both underground and surface work. We recommend their consideration to the explosives consuming industries, and we shall be glad to furnish more complete information.



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Sales Offices: Allentown, Pa., Birmingham, Buffalo, Chattanooga, Chicago, Denver, Duluth, Hazleton, Pa., Huntington, W. Va., Joplin, Mo., Los Angeles, Louisville, New York City, Norristown, Pa., Pittsburg, Kan., Pittsburgh, Pottsville, Pa., St. Louis, Salt Lake City, San Francisco, Wilkes-Barre, Wilmington, Del.



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Please send me additional information regarding the new Hercules Extras, No. 2 to No. 7.

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1481

Rock
Loading
Inside
means



Rock Handling Outside

The Larry Car has sufficient surplus power to handle the small wooden larry shown in front in addition to its own full load capacity.

If you are taking top, bottom or loading out roof falls in your mine; or if you are picking slate from your coal at the tipple you have an outside rock handling problem whose solution is important.

The Larry Car above shows the way the Northumberland Mining Company has successfully met this outside rock handling problem. The conditions under which this car operates are as follows:

 Gauge of track
 44"

 Speed
 6 to 7 mph.

 Grades
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 Length of round trip
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 Number of trips per day
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 Capacity of car
 20 tons of refuse

 Electrical equipment
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 Hand and air operated brakes

Hand and air operated brakes. Hand and air operated dumps. Hand and air operated sand boxes.

If you have an outside rock handling problem let us send you more complete information about this car.

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VULGAN WORKS Wilkes-Barre, Pa.U.S.A. ELEETINE LOCOMOTIVES

ROCK WORK— IN COAL MINES



"The two Myers-Whaley Machines used for the loading of rock, leave little to be desired in the accomplishment of this work," says Mr. T. J. Clark, of the Pittsburg Coal Co., in article on Machine Loading in Coal Age—pp. 261-262—Nov., 1927. He continues:

"By hand-loading methods, when a man has filled three, or at most four, 2-ton cars with slate in a shift he may be credited with having performed a fair task. But when the work is properly arranged each of these machines will load regularly in a single shift at least 60 cars of this capacity.

"Thus the machine performs a task equivalent to that of a crew of 15 to 20 men, assuming that all of them could work simultaneously in the loading of the rock from a single entry, which obviously is impossible. If more than six men are thus employed, interference and confusion results. In this heavy work, therefore, the machine not only effects a substantial saving in labor, but also usually loads the rock out of the entry at a rate which is three to four times faster than the maximum rate by hand loading.

"One of these machines is employed in Banning No. 2 mine in grading and widening entries and the other in Midland Mine in the taking of top. At Midland, an average thickness of 4 ft. of rock is being taken in entry stretches which aggregate about 2,000 ft. To all appearances the savings on this one job alone will pay the initial cost of the machine. Experience indicates that no mine that has much rock to be loaded into cars can be developed and maintained in the most economical manner without the services of a mechanical loader."

Write us for data on use of machines for tonnage loading of coal, entry driving, taking top or bottom rock in brushing, making grades, reopening aircourse, cleaning up old workings, etc.

MYERS-WHALEY COMPANY

KNOXVILLE, TENNESSEE

Myers Pioneer of Mechanical Loaders Whatley



EASY—Carnegie Steel Mine Ties are extremely easy to use. Simply hit the clip with any convenient tool and the rail is firmly secured. The tie is light in weight. A workman can carry five or six and a section of track may be shifted as a whole.

EFFICIENT—Recent improvements in Carnegie Ties increase their efficiency. Through better distribution of metal, the new sections have greater strength without increase in weight. The outside fastening has also been redesigned to eliminate any tendency of the rail pushing under the clip.

ECONOMICAL—The efficient buyer considers unit cost—the cost per foot of track per year. And he has found from experience that steel ties give him better track at a lower unit cost than wood ties. Carnegie Ties are made of copper steel. This copper content greatly retards corrosion, thus assuring a much longer period of usefulness.

For better track, for more economical track, use Carnegie Copper Steel Mine Ties.

Literature on Request

CARNEGIE STEEL COMPANY

CARNEGIE BUILDING, 434 FIFTH AVENUE PITTSBURGH, PENNA.

1891

arnegie Products
for Mine Use

* * *

Copper Steel Cross Ties Steel Mine Timbers

Wrought Steel Wheels for Mine Cars and Locomotives

Light Rails & Fastenings Standard Rails

Steel Shapes, Plates and Bars

CARNEGIE STEEL MINE TIES



Next month, the eighty-first anniversary of the birth of Mr. Thomas A. Edison, we will make an announcement in this magazine of his improved electric safety mine lamp which will be of as much interest to the mining industry as the recent announcement of the new Ford car was to the public.

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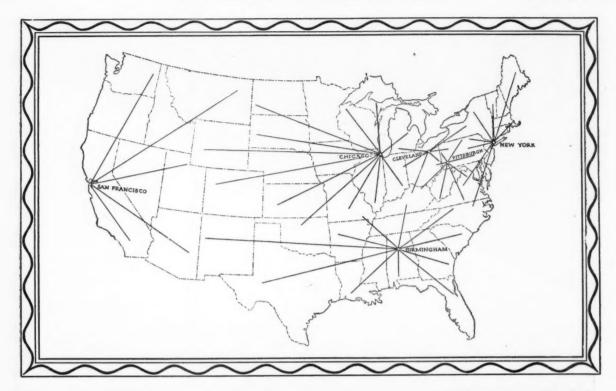
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The

MINING CONGRESS JOURNAL

A Monthly Magazine—The Spokesman For The Mining Industry— Published By The American Mining Congress

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NUMBER 1

Editorials

The New Year has brought to this journal fresh inspiration, a broadened viewpoint, and a keen de-

OUR NEW YEAR
RESOLUTION

termination to bring to the industry the best available information on all mining problems. The 1928 issues will bring to the mining man a vast amount of helpful suggestion, informative facts, and will be a "reference

library" of up-to-the-minute data on practical operating problems, economic features and legislative information. Included in the program are articles on Workmen's Compensation, Tariff, Labor, Problems of the Gold Industry, Better Marketing for Minerals, Immigration, Public Lands, Standardization, Taxation, Oil Shale, Blue Sky, Legislative Reviews, and many other features. Under the Practical Operating Departments there has been arranged a series of articles that includes discussion of the more important problems of production, together with information upon successful installations, and the most complete information on the progress of the application of mechanical means of production.

But in spite of the changes, the innovations, the new viewpoint, The Mining Congress Journal steadfastly holds to its original idea as to its place in the industry and the service it is prepared to render. It is merely planning to broaden that service and take full advantage of what it has learned in its thirteen years' of existence. It may not be amiss to repeat here the original announcement of this Journal's policy:

"Its purpose will be to keep our readers better informed concerning legislative matters, both at the National Capital and in the various state legislatures; to carry information concerning important legal decisions and administrative rulings; to carry discussions of the economics of mining; * * * As the Spokesman for organized effort in behalf of mining, it will stand against economic waste of the natural resources and of the productive forces which make them available for the market. * * It will urge better cooperation on the part of the Federal Government, but will always stand against governmental interference or competition with private enterprise. * * ""

The purposes of the Journal have not changed. In the years of its existence we have attempted to expand and fully develop the service which it can render.

For the New Year we promise twelve months of fulfillment of our New Year Resolution: We pledge ourselves to bring to you the most serviceable magazine our ability will produce.

The general opinion that the new tax bill would be a long step toward the simplification of the Fed-

THE NEW

eral income tax system has not proved correct. The technical and administrative provisions of existing law are not materially changed. They present the same difficulties and complications that are now experienced under

the existing statute, and a number of important changes are made which tend to further complicate instead of simplify the present administrative situation.

Taxpayers expect fairness in the income tax law. They will not have it under the administrative provisions of the new bill, even to the extent they have had it in the past, unless the Senate shall make some drastic changes in the House provisions, and these changes are agreed to by the House. For example, the elimination of the provisions of existing statute relating to consolidated returns is not in the interest of simplification. This change will result in a multiplicity of field examinations, many difficulties in the verification of the separate returns, and contradictory and inconsistent decisions or adjustments in many instances will arise.

The change in the status of March 1, 1913, surplus of corporations, whereby distributions from such surplus are subjected to tax on the stockholders is not justified as a measure of simplification or otherwise. This action violates a principle that is fundamental in so far as income taxation is concerned, namely, that the income tax amendment should not touch that which existed prior to its incidence, but only that which is made subsequently by way of earnings, profits, or appreciation in value when realized. Many other features of the new bill, although not of equal importance with this, are unsatisfactory both from the standpoint of fairness and simplification.

It is now up to the Senate to reshape the bill. There is slight chance for any simplification in the bill other than that which will result from rearrangement and classification of titles and the general, technical and administrative provisions. But the Senate may restore essential provisions of existing statute, and thus enable corporate taxpayers to continue making returns of income under the existing system with which they are familiar, and under which, after many years, their accounting departments and records have become more or less stabilized. Simplification is something that the future will have to bring forth. Only a few traces of it can be found in the present bill.

The Seventieth Congress will shortly be called upon to appropriate nearly a billion dollars for the "purposes of govern-

INCREASING APPROPRIATIONS the "purposes of government." By that we mean that approximately a billion dollars from the United States Treasury will be spent in the support of various Government activities in Washington and throughout the coun-

try. An appalling sum surely for the administration of our Government. And yet it is safe to say that every agency supported by the Government exchequer will ask for an increase in appropriation.

The mining industry which we represent is not immune. Its two representatives in the Government are asking for increases. Friends of the Bureau of Mines and the Geological Survey maintain stoutly that they have been discriminated against, and that their work in behalf of mining is cramped and curtailed because of lack of financial support. There would seem to be some justification in their argument when the appropriations for this industry are contrasted with agriculture. This branch of the Government receives annually one hundred and twenty-five million dollars to be expended in research and for the solution of farming problems. The mining industry has received, for its two bureaus, four millions annually. It is interesting to note that agriculture with its generous Government aid has increased its production during the past twentyfive years but 47 percent, while mining, with practically no help, has increased 248 percent.

During these years that the industry has been growing in leaps and bounds, the number of high-grade deposits has been continuously exhausted. Research carried on by the industry itself has brought about the utilization of many low-grade deposits, but the problems are becoming increasingly difficult, and the deposits increasingly lower in grade. It is well to remember, also, that the Bureau of Mines was not established until 1910, and that its services have been available to the industry

but a very few years.

As we understand it, neither the Bureau nor the Survey are asking for an increase to inaugurate new activities. Rather, they wish more money in order that they may intelligently continue research already underway, such as the production of oil from shale, the establishment of greater safety and efficiency in the coal and metal mines, and the solution of the metallurgical problems that beset the utilization of our low-grade ores. The proper mapping of mining areas has been handicapped in a most detrimental fashion, and there are few connected with the industry that have not protested violently concerning the length of time between the completion of a report and its release to the industry. Invariably when the root of the evil was discovered it has been "lack of funds."

The purposes of the Bureau as set forth by Director Turner in this issue, are as follows:

"The service rendered by the Bureau of Mines to the Nation's great mineral industries lies within two broad fields of endeavor: Conservation of the life and health of the million miners and quarrymen and the million or so workers in the metallurgical and petroleum industries; and the efficient production and utilization of the minerals which these millions of men labor to exploit for the comfort and welfare of mankind."

Such work needs support, and should find a sympathetic ear in the Appropriations Committee.

We are drastically opposed to bureaucracy in any form. We are opposed to the ever-increasing tendency to go deeper and deeper into the pocket of Uncle Sam. We are in favor for our own child, the mining industry, of only such Government assistance as will enable the industry to continue its brilliant performance for the Nation. We do not advocate that the Treasury be asked to appropriate a new sum for our bureaus, but we do believe that a re-allocation of the funds to appropriate might be advantageously considered. The decrepancy between 125 million and 4 million is too obvious for comment. The importance of both agriculture and mining are equally obvious. A small deduction from the agriculture appropriation transferred to mining's account would not cripple research for the farmer, and might save thousands of lives in the mines.

No matter how roughly sessions of Congress deal with industry, a new Congress stirs fresh hope. As

THE SEVENTIETH CONGRESS a people we have a deep faith in representative government, and always look for better things in the next Congress. Of course, we all look at Congress from our own peculiar vantage point. Some of us hope only that it will let us

alone; some of us hope to gain something through political means; still others firmly believe that some good legislation more than outweighs the bad.

The Seventieth Congress took up its duties early in December, and while manfully attacking those incompatible, obstreperous subjects of tax reduction and increased appropriations, has not given the trusting public cause to believe that this session will distinguish itself for self-control in the matter of introducing bills. It has already, be it known, set a record in just the opposite direction, launching approximately ten thousand bills upon their precarious course through the legislative mill during the first two weeks.

Long drawn out, futile and partisan debates have characterized other sessions. It is to be hoped that the Seventieth Congress, in spite of such an inauspicious beginning, and in spite of the fact that neither party has a real working majority, will establish a reputation for brevity, for the few measures that actually become laws, for the wise distribution of appropriations, for the handling of our foreign affairs, and, perhaps, foremost and most important, that it shall forget the word "investigation."

America today is the outstanding nation on earth. Our example will be emulated by other nations. The performance of our national legislature is watched keenly. By that performance we may either rise or fall in world estimation.

The Congress of the United States is on the whole an intelligent, fair-minded body. They are naturally limited in their knowledge to the source of their information. It behooves industry to fully inform its representatives, making available to them the information that will prevent unwise legislation, or any legislation, and firmly establish the American Nation as the example of democracy planned by those brave gentlemen who made democracy possible. This is no time for political harrangue. Let Congress stick strictly to its job and justify the faith of the great American public that places its destiny in its hands.

During the Wilson

THE DAVIS COAL CONFERENCE

administration the Department of Labor gained a reputation, deservedly or not, of being the representative of organized labor only. Under the guidance of James J. Davis, Secretary of Labor of the present administration, the Department has dispelled that idea. It has shown a broad knowledge

of affairs and that impartiality that is expected of a Government of all the people.

It is then a little difficult to reconcile this reputation with the recent conference called by the Department of Labor to reestablish the Miners' Union in the Central Pennsylvania field. Surely all of the facts were available to the Department. The reply alone of the operators' organization in Central Pennsylvania is sufficient to blast any notion of accomplishing anything by such a conference. Their reply sums up the situation perfeetly:

"The operators of Central Pennsylvania made every effort to avoid the development of the present situation. Protracted joint conferences considering a new wage agreement were held with the United Mine Workers of America, District No. 2, in May and June this year. A complete presentation of facts affecting the coal industry of this district was submitted to the miners at that time. The financial losses borne by the union operators for three years under the so-called Jacksonville Agreement were pointed out. The diversion of millions of tons of business to other competing fields reaching the same markets was shown. The much lower wage levels paid in fields competitive with this district were proven. The alarming depreciation in property values was considered. The number of idle mines and idle miners was discussed. The general poverty and business depression prevalent in many communities was admitted. No consideration was given to these facts. The operators were asked to renew an impossible wage agreement. The mines were forced to close down July 1 after this conference had failed. The mines remained idle for 30 days, during which period the Mine Workers were asked to place themselves in a position to really negotiate a workable agreement. This they refused to do. Many of the miners of Central Pennsylvania, realizing the utter folly of the policy that was bringing greater chaos to the industry, solicited the operators for employment. The mines were opened and are now producing as much coal as they can market. Stabilization of the industry must be sought when there is more peace in the industry and when passion and prejudice will have been entirely removed from the discussions. Such consideration must also include the great coal fields of southern West Virginia and Kentucky as well as those which you have invited to participate in a joint conference with the United Mine Workers of America. For these and many other sound reasons the Central Pennsylvania operators must again decline your invitation.'

In the face of these facts, what does the Department wish the operators to do? Confer with the United Mine Workers of America, they say. But the operators have already conferred with them, and have exhausted all of their arguments to make the miners' organization realize the necessity of adjusting their demands to fit

economic conditions. This failing, the operators then appealed to the miners themselves. That a satisfactory arrangement for both sides was effected is evidenced by the fact that the mines are now operating, and the men are at work. Why should they be disturbed? The only apparent dissatisfaction with the present situation comes from the officials of the United Mine Workers who, by reason of their attitude, have placed themselves in the position of outsiders. They should, therefore, have no further part in the existing arrangement.

Before they ask to be taken back, let them demonstrate in Indiana and Illinois that union operation will bring steady work and prosperity to the men and the mine owners.

We are a nation of pioneers, heirs to a vast heritage of courage, persistence and a record of ac-

A MAGNIFICENT PERCENTAGE

complishment. Our forefathers paved the way for the truly great development that has marked the last twenty-five years of our his-The development of tory. the mining industry has been the backbone of that progress,

and has called for the highest order of pioneering; for men who can accept defeat and success with equal grace, and carry on in spite of tremendous odds. The result justifies the statement that those who have developed our minerals are men of this type. As witness, the annual report of the Department of Commerce, with its interesting statement that between the years 1899 and 1925, mineral production in the United States increased 248 percent. An amazing figure, but even more startling when considered in conjunction with other statistics given by Mr. Hoover in the same report. For instance, during the same period agriculture increased 47 percent, and manufacturing 178 percent. The population increased approximately 55 percent.

Today the mining industry, again according to Mr. Hoover, offers employment to something like four million workers, and serves as a means of support for at least twenty millions of our population.

Surely this is a record to be proud of.

The Southern Division of the American Mining Congress will hold its third annual Industrial Development Conference at Gulfport, Miss.,

on March 15-17.

INDUSTRIAL DEVELOPMENT CONFERENCE

These gatherings bring together a significant assemblage of railroad executives, bankers, producers and consumers of raw materials, technical men and Chamber of

Commerce representatives, with delegates appointed by the Governors of the several states, and in view of the reduced rate winter tourist fares in effect to Gulfport at that time, a large attendance is anticipated.

Recent Department of Commerce reports show that the South has increased its hydroelectric power generation 31 percent in the last two years, or more than double the rate for the country as a whole. The nonmetallies of the South are approaching an era of intense development.

Intelligence and prudence in the development of our great natural resources must obtain in order to gain the

A NECESSARY POLICY highest efficiency, the greatest practical good and the widest distribution. The wise Government policy that has permitted of the magnificent increase in mineral production during the past twentyfive years should be safe-

guarded, improved and extended to the future. Restrictive legislation, threats of Government confiscation, unjust taxation, and a parsimoniousness in dealing with the industry are inimical to the Nation's welfare, and have no place in an intelligent and enlightened generation. Cooperation and sympathetic understanding of the needs of industry we confidently believe will bring substantial return to the Government and the people responsible for that Government.

What shall we of this generation leave to posterity. Much, of course, in an enlightened civiliza-

THE HERITAGE OF POSTERITY tion, many advantages and blessings little dreamed of at the beginning of the Twentieth Century. While we are confident that posterity will take care of itself, and that a future made too soft will develop a race that we would

not be proud of, we still believe that this generation should watch its step and not saddle future generations with such things as, for instance, an iron-clad bureau-

Yet every indication points to the fact that we are arriving slowly, but surely, at the Bureau and Commission form of government. Many such agencies are already firmly intrenched in our government system. A scanning of the bills introduced in Congress, of the resolutions adopted by various organizations, and the daily editorial page of our vast newspaper system finds an alarming array of suggestions for the forming of new bureaus and commissions.

The American public is an apt scholar at catch phrases. It took to its bosom the mighty slogan of "There ought to be a law passed," with a result that has cursed us as a law-mad country. Wearying of that pastime, there is now being advanced what may prove to be a worthy successor. in the phrase, "A high-class Government commission."

Few plans are advanced these days that purport to hold any solution to industry's problems that do not, no matter how timidly, advocate a Government bureau or commission. The mining industry seems to be in the thick of these recommendations. A commission to study the problems of the zinc industry, of the gold miner, of the silver producer, and by all means for the coal industry.

The propaganda for commissions has had a mushroom growth. Many men high in the ranks of industry, failing to see a way out of difficulty, have as what they term a "last resort" advocated a "High Class Government Commission." Just what is meant by the term "high class" is not specified. Certainly those advocating such a step have in mind men of the caliber of Charles Evans Hughes, Calvin Coolidge, or any of the outstanding conservatives in political circles. But where do they expect to find them? And even if they did, and commissions were created under Government

auspices to study the problems of all industry, how long would such a commission maintain its high caliber? All would be subject to changing administrations and political influence.

We can not believe that it is really a fact that industry is willing to place its affairs in the hands of the Government. We can not believe that business, either large or small, seriously believes in the establishment of a bureau-commission form of government.

Nevertheless posterity stands in the shadow of that danger.

Secretary Hoover, in commenting upon the splendid advancement of this country during the last

TOO MUCH EVERYTHING twenty-five years, bases this achievement upon the efficiency with which we produce our products. He says: "The increase in efficiency in older industries has freed great numbers of persons to undertake new industries,

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and thus add new articles and services to the standard of living."

The development of the mining industry has been rapid, and as a rule, efficient. Many hold that it has developed entirely too rapidly, and that its efficiency has increased the evils of over-production and overmanning, thus creating a situation that must be faced and remedied before serious consideration of practical conservation may take place. Certainly in the coal industry the cry of "too many mines and too many miners" is justified.

The Sherman Anti-Trust Law which has prevented combinations is being scrutinized carefully to ascertain whether without amendment it will permit the mining industry to solve its over-production, over-manning problem. Speakers at the 30th Annual Convention of The American Mining Congress pointed out an important tendency in the decisions of the Supreme Court and the policies of the Federal Trade Commission, which were said to give encouragement to the formation of large combinations, so long as they are not in fact conspiracies in restraint of trade.

The demand for the consolidation of the railroads, the recent recommendations for the solution of the oil industry's problems, and the imperative need for some remedial action for the coal industry, gives hope that the Sherman law may be so construed or amended as topermit industry to solve its own problems to the benefit of the consumer as well as the producer.

It is frequently pertinently asked: "Who is it that is demanding changes in the anti-trust laws? And if amended or abrogated entirely, what will take their place"? Gilbert H. Montague of the New York Bar, in a recent address included such eminent authorities as Secretaries Hoover and Davis, Attorney General Sargent, The Interstate Commerce Commission, the Petroleum Institute, the Associations of Manufacturers and distributors and business in general, as being some of those who are seeking modification of the trust laws. Even with this wide-spread endorsement, Mr. Montague points out the almost insurmountable barrier of public opinion in any effort to change these laws.

The mining industry is seeking ways and means to continue to give the public the greatest luxuries at the least cost of any country in any period of existence. The discussion carried elsewhere in this issue on Modifying the Anti-Trust Laws, furnishes a great deal of food for thought.

THE OIL SHALES of INDIANA

By RALPH ESAREY *

A Brief Review Of Existing Information On Indiana Shales—Forty-five Billion Tons Available From One Outcrop—Physical Characteristics, Quarry Conditions, Chemical Composition and Oil Content Discussed

is determined by the yield of crude oil per ton of shale, and variations from 3 or 4 gallons per ton in lean shales to over 90 gallons in exceptionally rich deposits are reported. Other economic factors, including by-products of the distillation processes, have been somewhat neglected, especially in the United States, during the recent search for

new supplies of crude motor

IL SHALE has

an argillaceous

or shaly deposit which

yields oil upon distilla-

tion, and when burned

produces more than 33

percent ash. Richness

been defined as

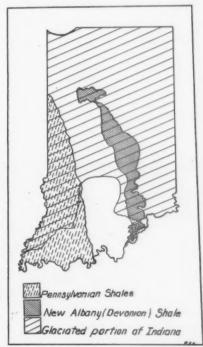
fuel. The leaner shales may possess certain advantages which offset the higher yields of the richer shales.

According to the above definition, both the Devonian and Pennsylvanian rocks of Indiana contain oil shales of varying degrees of richness. More than 45,000,-000,000 tons of this material are available in Indiana from the outcrop of one formation, the New Albany black shale. With an average yield of about 12 gallons of crude oil per ton of shale, enough oil can be extracted from this deposit to supply the United States with motor fuel for many years. Although a lean shale, the advantages of being near the great centers of consumption, the extremely low cost of quarrying the shale, its uniformity and great thickness, together with a shorter length of time required for retorting than many richer shales, compel its consideration as a possible future source of petroleum.

THE NEW ALBANY SHALE †

The New Albany shale of Indiana comprises a portion of the semicircular outcrop of the Devonian shales around the Cincinnati Uplift. The outcrop extends from north to south through central eastern Ohio into Kentucky, there circling

the Jessamine Anticline or the Blue Grass Region and extending north into Indiana, to be completely covered by the glacial



Map showing the location of the bodies of carbonaceous shales in Indiana

Exposure of the Sheety Shale above coal in a strip pit in Pike County, Indiana. The shale here is 15 ft. thick. The coal and lower part of the shale are covered by débris and water

drift in the central
eastern portion of the
state. Correlations
show the New Albany
shale the same as the
Huron shale of Ohio,
the Chattanooga of
Tennessee and Kentucky, with probably a
similar age as the Genesee

of New York. Some dis-

cussion has arisen as to the exact age of the New Albany shale, whether of Lower Mississippian or Upper Devonian age, but the writer is inclined to the latter age with the correlations as given above. The black shale in Indiana was named from the city of New Albany on account of its extensive development at that

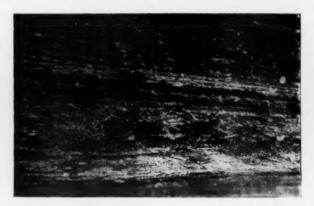
place, especially along the bluffs of the Ohio River.

The New Albany shale at one time outcropped over much of central eastern Indiana, but successive glacial epochs have included all but the southern tip of the formation. From northern Jackson and central Bartholomew Counties northeastward, the drift overlies the shale from 40 to 200 ft, in thickness, until Carroll and White Counties are reached, where the shale is again exposed. Between these points development is rendered impossible by the great thickness of the drift, while outcrops in the two latter counties are limited in number and show slight thicknesses of shale. Only a thin veneer of glacial débris covers southeastern Indiana, especially the shale outcrops. central Jennings and Jackson Counties southward, the glacial overburden seldom exceeds a few feet in thickness, not enough to hinder quarrying or utilization of the shale. Seven counties in southeastern Indiana contain oil shale in large quantities: Floyd, Clark, Scott, Jackson, Jennings, Jefferson, and Bartholomew. The belt of outcrop extends in a general north-south direction from the city of New Albany to the city of Columbus, and varies in width from less than a mile in southern Floyd County near the Ohio River to over 20 miles in

Department of Geology, University of Indiana. † Reeves, J. R., Oil Shales of Indiana, Ph. D. Thesis, Dept. Geology, Indiana University, 1923. The following article is, for the most part, a summary of the work of Mr. Reeves.



Jointing in the shale along the banks of the Ohio River, near New Albany, Ind.



Bluff of New Albany oil shale. Note figure giving an idea of its thickness

northern Jennings and Jackson Counties. It is exposed over approximately 500 square miles of the state, not including areas to the west, where it underlies other formations. Thickness ranges from a few feet along the eastern limit of the outcrop to as much as 140 ft. at the western border, where fully represented. The regional dip causes the formation to thicken to the west until it reaches its maximum development and passes underneath the overlying Mississippian rocks. Throughout the entire area of outcrop the shale maintains its normal characteristics except for a few minor irregularities noted below.

PHYSICAL CHARACTERISTICS

The New Albany oil shale is a homogeneous formation ranging from 100 to 140 ft. in thickness, 95 percent of which is true oil shale. Lean streaks occur at various points, but they are neither thick or extensive, so that the average yield of oil from the shale is not greatly affected. Thin lenses of sandstone and limestone, often closely associated with nodules and masses of pyrite, are present at a few horizons, especially in the lower 15 ft., but altogether compose less than 5 percent of the total thickness of the shale. Well-developed joints about 5 ft. apart are characteristic for the entire

apart are characteristic to the comparison in Indiana. Freshly broken edges of shale exhibit a velvety black luster which changes to a brown or gray upon exposure. Fissility develops rapidly with weathering. The shale is hard and brittle, breaking with an irregular fracture. It ignites with difficulty and burns with a yellow, smoky flame. When placed in a fire it burns rapidly for a short time only and will not disintegrate readily into ash.

QUARRY CONDITIONS

The greatest advantage of the New Albany shale over the richer western shales lies in the fact that it can be cheaply and easily quar-

ried. Its uniformity makes it practical to use the entire deposit, while its thickness permits blasting upon a large scale and subsequent handling with steam shovels. A few men working in an open pit or hillside quarry under daylight conditions can accomplish the work of dozens of underground miners at a fraction of the cost per ton. Approximately 10 tons of Indiana shale can be quarried for the cost of mining 1 ton of western shale by underground methods. Climatic conditions will permit quarrying in the open throughout most of the year. Really severe weather is encountered only a few days of the winter season, so that small storage facilities would furnish supplies for such emergencies. Many permanent streams cutting through the district furnish abundant supplies of water for boilers, condensers, hydraulic stripping, etc. Generally the overburden of soil and mantle rock is only a few feet thick and the expense of removing it is practically negligible when computed on a ton-cost basis. An average of less than 10 ft. of overburden exists for the entire area. In addition the shale is brittle and breaks readily in either a jaw or spindle type crusher. The quantity production of a crushed product of uniform size for retorting would be a compara-



Quarry face showing the massiveness of the unweathered shale

tively simple problem. Locally the shale is utilized for road metal, and many small quarries may be found scattered through the region of outcrop.

CHEMICAL COMPOSITION

Finely divided sand intermixed with small amounts of clay and mica make up the bulk of the shale deposit. Pyrite is found abundantly throughout the entire formation, varying from microscopic particles to nodules over 2 in. in length. As stated above, the limestone is present in segregated concretions or thin lenses, and is almost exclusively confined to such inclusions. Organic matter actually composes a very small percent of the whole, but is exceptionally well distributed. It appears under the microscope in minute masses. Thin sections of the shale studied under the microscope reveal spores and spore cases similar to those found in coal beds. Generally these are surrounded by masses of organic or bituminous matter. The following analysis of shale from near New Albany is fairly representative:

																				Percent
Water, expelled a	t	1	0	0	d	e	œ	r	e	ei	6	(C							.50
Volatile organic																				14.16
Fixed carbon																				
Silica																				
Pyrite and alumin																				
Calcium oxide																				
Magnesium oxide		۰						0	۰	۰		0		9		0		۰	0	.12
Total				×											. ,					100.00

A proximate analysis shows: Ash, 82.80 percent; volatile matter, 12.20 percent; and fixed carbon as 1.50 percent. fı

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OIL CONTENT

Samples of the New Albany shale were collected by Mr. J. R. Reeves * from each portion of its outcrop and from every few feet of its vertical thickness. An area of 10 square miles was represented by each sample and the points of sampling were well distributed

^{*} Reeves, J. R., Oil Shales of Indiana, pp. 36-39.



Typical "road metal" quarry in the New Albany shale in Jennings County, Ind.



Quarry face showing the structure of the New Albany Oil Shale and the effects produced by blasting

over the district. Especial effort was made in each case to secure fresh, unweathered shale. In this way a true evaluation of the entire deposit was made, regardless of lean or exceptionally rich portions.

The samples were tested by the same methods and with identical apparatus as the Bureau of Mines employs in its various oil-shale laboratories. The time of retorting each sample was 1 hour and 15 minutes under atmospheric pressure of 742 mm., on the average. Each sample was tested for oil yield, water yield, specific gravity of crude oil, unsaturation of the tops, carbon residue from the atmospheric distillation, yield of scrubber naphtha, and amount of nitrogen.

The oil yield varied from 4.8 gallons per ton to 15.7 gallons, with an average near 12 gallons. The crude oil had a specific gravity of .943, emitted a strong sulphurous odor, and was dark brown in color. Carbon residue, with an end point of 275 degrees C., of all samples averaged 6.3 percent. The percent of tops ranged from 38.8 to 52.9 percent, with all samples averaging 42.1 percent. The amount of scrubber naphtha varied directly with the oil yield, depending upon the rate of retorting. The poorest samples showed only .38 gallon per ton, while the better ones ran as high as 1.83 gallons. Enough permanent, combustible gas was produced to replace much of the fuel consumed under the retort. The volume of gas varied from 500 to 1,800 cu. ft. per ton of shale, depending upon retorting conditions. The potash (K2O) content was between 4 and 5 percent, but it is present as a silicate in a form not easily made available. The recovery of potash as a by-product does not at present appear feasible. Likewise the actual yield of nitrogen as ammonium sulphate was somewhat lower than it should be theoretically, averaging less than 40 pounds per ton of shale. However, the quantity of ammonium sulphate is dependent upon the rate and time of retorting and could be developed into an important by-product, in all probability.

CONCLUSIONS

When compared with oil shales of Nevada, Utah, and Colorado, the New Albany oil shale is low in yield of oil, averaging about one-third as much as the better shales of the Rocky Mountain States. Thus it would require 3 tons of Indiana shale to produce as much crude oil as 1 ton of western shale, involving producing, handling, and retorting three times the bulk of material. This advantage is materially offset by the fact that 9 or 10 tons of New Albany shale can be quarried as cheaply as 1 ton of western shale can be mined. The retorting period is also 20 to 33 percent shorter, allowing a greater daily capacity per retort for the lower grade shale. The proximity to sources of supplies, excellent transportation facilities, markets, labor, etc., would be an economic factor decidedly in favor of the Indiana shale. Certainly the comparison of two oil shales on the sole basis of yields of crude oil per ton does not reveal the true relative merits of the formations involved, especially from the standpoint of exploitation.

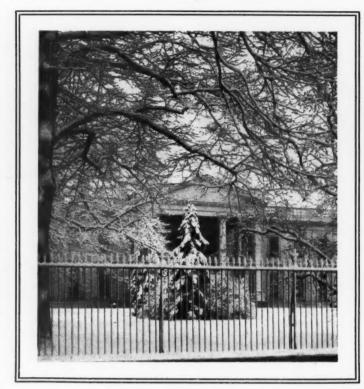
THE PENNSYLVANIAN OR COAL MEASURE SHALES

A number of black shales occurring in

the intervals between the coal beds of southwestern Indiana contain high percentages of organic matter. Twenty-six counties in this part of the state contain beds of black shales of varying thicknesses. The lowest bed, whose outcrop is farthest to the east, occurs over the Minshall coal, and the highest stratigraphically lies over Coal VIII. In thickness they range from 1 to 15 ft., and many are persistent over wide areas, often assisting with the identification and determination of the stratigraphic location of the associated coal beds. The shale above Coal V is especially diagnostic.

Two classes of shales are recognized, the "sheety" or paper shales and the massive, harder ones verging into coal. The first class weathers into sheets and thin flakes, turning into a light gray color. It is dull black when freshly exposed. The second class includes bone coal, blackjack and cannel coal. It has few joints and bedding planes and is somewhat harder than the first class. Fossils are found in all of the shales except that overlying Minshall coal, and no doubt some of them contain well-defined faunas. The shales ignite readily and burn with (Continued on page 11)

			of a	thickness shale In.	Average yield in gals, crude oil per ton of shale
Post Allegheny	Merom	Merom Sommerville Island			
	Shelburn	Sheety shale Coal VIII	2	6	
Allegheny	Petersburg	Coal VII Coal VI Coal VA Sheety shale Coal V Black shale Coal IVA	16	3 6	17 21
	Staunton	Coal IV Black shale Coal IIIA Black shale Coal III Black shale		3 0 6 0 2 6	54 22
Pottaville	Brazil	Coal II Sheety shale Minshall Coal Upper Block Coal Lower Block Coal		4 0	25
	Mansfield	Coal I			



LEGISLATIVE REVIEW '

Tax Revision Bill Passed By House-Percentage Depletion Plan For Metal Mines Likely To Be Included In The Senate— Tariff Revision Proposals Include Import Duties On Silver And Feldspar—War Mineral Relief Bill Confined To Review By Court Of Claims—Coal Regulation Among Several Bills Introduced During First Two Weeks Of Session

SENATE COMMITTEES

Mines and Mining-Oddie, Nevada: du Pont, Deleware; Goff, West Virginia; La Follette, Wisconsin; Robinson, Indiana; Frazier, North Dakota, Republicans. Walsh, Montana; Ashurst, Arizona; Pittman, Nevada; King, Utah, Democrats.

Labor-Couzens, Michigan; Borah, Idaho; Phipps, Colorado; Metcalf, Rhode Island; Bingham, Connecticut; Gillett, Massachusetts, Republicans. Jones, New Mexico; Ferris, Michigan; Copeland, New York; Tyson, Tennessee; Walsh, Massachusetts, Democrats.

Public Lands - Nye, North Dakota; Smoot, Utah; Norbeck, South Dakota; Oddie, Nevada; Dale, Vermont; Mc-Nary, Oregon; Willis, Ohio; Gooding, Idaho, Republicans. Pittman, Nevada; Jones, New Mexico; Kendrick, Wyoming; Walsh, Montana; Dill, Washington; Ashurst, Arizona; Wagner, New York, Democrats.

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Banking and Currency- Norbeck, South Dakota; Edge, New Jersey; Phipps, Colo-

rado; Sackett, Kentucky; Frazier, North Dakota; Pine, Oklahoma; Brookhart, Iowa; Steiwer, Oregon, Republicans. Fletcher, Florida; Glass, Virginia; Edwards, New Jersey; Mayfield, Texas; Wagner, New York; Barkley, Kentucky; Tydings, Maryland, Democrats.

Finance - Smoot, Utah; Mc-Lean, Connecticut; Curtis, Kansas; Watson, Indiana; Reed, Pennsylvania; Shortridge, California; Edge, New Jersey; Couzens, Michigan; Fess, Ohio; Greene, Vermont; Deneen, Illinois, Republicans. Simmons, North Carolina; Jones, New Mexico; Gerry, Rhode Island; Harrison, Mississippi; King, Utah; Bayard, Delaware; George, Georgia; Walsh, Massachusetts;

Barkley, Kentucky, Democrats.

Immigration - Johnson, California; Keyes, New Hampshire; Willis, Ohio; Reed, Pennsylvania; Nye, North Dakota; Gould, Maine, Republicans. King, Utah; Harris, Georgia; Copeland, New York; Blease, South Carolina; Stephens, Mississippi, Democrats.

Indian Affairs-Frazier, North Dakota; Schall, Minnesota; McMaster, South Dakota; La Follette, Wisconsin; Jones, Washington; Pine, Oklahoma; Steiwer, Oregon, Republicans. Ashurst, Arizona; Kendrick, Wyoming; Wheeler, Montana; Dill, Washington; Bratton,

were given by leaders in charge of the measure that, should the Senate add a provision for this depletion, it would receive sympathetic consideration. Lack of information on the subject and of proper time in which to consider the matter was given as the reason why the House Committee on Ways and Means did not include this proposal in the bill. An amendment for a 15 percent depletion rate for metal mines, offered by Representative Arentz, Republican, Nevada, was

tion for metal mines, assurances

ONGRESS has

gotten away to

a good start on

the legislative program

for the first session of

the Seventieth Con-

gress. Meeting on De-

cember 5, the House

was able, before the

Christmas recess on December 21, to pass

the tax revision bill, which, as voted by that

body, will reduce the

yearly Federal tax

levies by \$289,770,000.

While the House did

not make provision

for percentage deple-

debated and appeared to receive a favorable response, but was not pressed in the House on assurance by the leaders that it would be favorably considered if provided for in the Senate. Mr.

Arentz stated that investigation by the Treasury Department has shown that metal mining companies under present practice had been given an average depletion of 161/2 percent and that the flat rate of 15 percent would greatly simplify and expedite settlement of tax returns. Senator King, Democrat, Utah, has introduced the depletion proposal in

the Senate.

The opening of Congress witnessed the appointment of new committees of the House and Senate for the next two years. Members of Senate committees handling mining matters are:

New Mexico; Thomas, Oklahoma, Democrats.

Interstate Commerce — Watson, Indiana; Gooding, Idaho; Couzens, Michigan; Fess, Ohio; Howell, Nebraska; Goff, West Virginia; Pine, Oklahoma; Sackett, Kentucky; Metcalf, Rhode Island; du Pont, Delaware, Republicans. Smith, South Carolina; Pittman, Nevada; Bruce, Maryland; Dill, Washington; Wheeler, Montana; Mayfield, Texas; Hawes, Missouri; Black, Alabama; Wagner, New York, Democrats.

Manufactures — McLean, Connecticut; McNary, Oregon; Metcalf, Rhode Island; La Follette, Wisconsin; Gould, Maine; Deneen, Illinois, Republicans. Smith, South Carolina; Reed, Missouri; Edwards, New Jersey; Wheeler, Montana; Tyson, Tennessee, Democrats.

HOUSE COMMITTEES

Members of House committees have been appointed as follows:

Mines and Mining—Robsion, Kentucky; Williamson, South Dakota; Colton, Utah; Winter, Wyoming; Sproul, Kansas; Manlove, Missouri; Arentz, Nevada; Englebright, California; Gifford, Massachusetts; Leech, Pennsylvania; Sutherland, Alaska, Republicans. Greenwood, Indiana; Underwood, Ohio; Whitehead, Virginia; Somers, New York; Hare, South Carolina; Kent, Pennsylvania, Democrats.

Banking and Currency—McFadden, Pennsylvania; King, Illinois; Strong, Kansas; Luce, Massachusetts; Mac-Gregor, New York; Fenn, Connecticut; Campbell, Pennsylvania; Leatherwood, Utah; Beedy, Maine; Hooper, Michigan; Allen, Illinois; Goodwin, Minnesota, Republicans. Wingo, Arkansas; Steagall, Alabama; Brand, Georgia; Stevenson, South Carolina; Black, Texas; Goldsborough, Maryland; Prall, New York; Canfield, Indiana, Democrats.

Coinage, Weights and Measures—Perkins, New Jersey; Vestal, Indiana; Thurston, Iowa; Kahn, California; Fitzgerald, Ohio; Lampert, Wisconsin; Schneider, Wisconsin; Sproul, Kansas; Monast, Rhode Island; Sutherland, Alaska, Republicans. Lowery, Mississippi; Howard, Nebraska; Somers, New York; Douglass, Massachusetts; Kemp, Louisiana; Green, Florida; Palmisano, Maryland; Kvale, Minnesota, Democrats.

Immigration — Johnson, Washington; Taylor, Tennessee; White, Kansas; Free, California; Vincent, Michigan; Jenkins, Ohio; Golder, Pennsylvania; MacGregor, New York; Schneider, Wisconsin; Brigham, Vermont; Bachmann, West Virginia; Langley, Kentucky; Chase, Pennsylvania, Republicans. Sabath, Illinois; Box, Texas; Dickstein, New York; Rutherford, Georgia; Moore, Kentucky; War-

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ren, North Carolina; Evans, Montana; Green, Florida, Democrats.

Indian Affairs — Leavitt, Montana; Sproul, Kansas; Stalker, New York; Knutson, Minnesota; Williamson, South Dakota; Letts, Iowa; Brigham, Vermont; Peavey, Wisconsin; Arentz, Nevada; Fitzgerald, Ohio; Rogers, Massachusetts; Englebright, California; Palmer, Pennsylvania; Sutherland, Alaska, Republicans. Sears, Florida; Evans, Montana; Howard, Nebraska; Dill, Washington; Morrow, New Mexico; Blanton, Texas; Howard, Oklahoma; Cartwright, Oklahoma, Democrats.

Interstate Commerce — Parker, New York; Cooper, Ohio; Denison, Illinois; Merritt, Connecticut; Mapes, Michigan; Newton, Minnesota; Hoch, Kansas; Wyant, Pennsylvania; Burtness, North Dakota; Nelson, Maine; Robinson, Iowa; Garber, Oklahoma; Johnson, Indiana; Beck, Pennsylvania, Republicans. Rayburn, Texas; Huddleston, Alabama; Lea, California; Parks, Arkansas; Crosser, Ohio; Shallenberger, Nebraska; Corning, New York; Milligan, Missouri; Peery, Virginia, Democrats.

Labor—Kopp, Iowa; Zihlman, Maryland; Manlove, Missouri; Rowbottom, Indiana; Welch, California; Beck, Wisconsin; Smith, Idaho; Vestal, Indiana; Campbell, Pennsylvania; Strong, Kansas; Taylor, Tennessee; Fenn, Connecticut; Palmer, Pennsylvania, Republicans. Connery, Massachusetts; Jacobstein, New York; Carrs, Minnesota; Norton, New Jersey; Kent, Pennsylvania; Combs, Missouri; Igoe, Illinois; Steele, Georgia, Democrats.

Public Lands—Sinnott, Oregon; Smith, Idaho; Colton, Utah; Winter, Wyoming; Leavitt, Montana; Swing, California; Arentz, Nevada; Letts, Iowa; Hopper, Michigan; Gifford, Massachusetts; Englebright, California; Bushong, Pennsylvania; Berger (Socialist), Wisconsin; Houston, Hawaii, Republicans. Evans, Montana; Dill, Washington; Morrow, New Mexico; Douglas, Arizona; Yon, Florida; Johnson, Oklahoma; Norton, Nebraska; White, Colorado, Democrats.

Rivers and Harbors—Dempsey, New York; Freeman, Connecticut; Strong, Pennsylvania; Connolly, Pennsylvania; Michaelson, Illinois; Morgan, Ohio; Hull, Illinois; Seger, New Jersey; Chalmers, Ohio; Carter, California; Hudson, Michigan; Houston, Delaware; Niedringhaus, Missouri, Republicans. Mansfield, Texas; McDuffle, Alabama; Kindred, New York; Lyon, North Carolina; Deal, Virginia; O'Connor, Louisiana; Kunz, Illinois; Mooney, Ohio, Democrats.

The following is a summary of bills affecting mining which have been introduced in Congress, the committee reference being indicated at the conclusion of the statement of its contents:

REVENUE

H. R. 1. Passed by the House. This is the new tax revision bill, which will be effective on income tax returns filed March 15, 1928.

H. R. 1. Amendment to by Mr. King (Dem., Utah). This amendment authorizes 15 percent depletion for metal mines. The rate is to be based on gross income and the allowance shall not exceed 50 percent of net income. It will not apply to mines discovered after the new tax law becomes effective. Finance.

S. Res. 27. Mr. McKellar (Dem., Tenn.). For investigation by a committee of five Senators of tax refunds involving \$50,000 or more, reporting in December, 1928.

H. J. Res. 24. Mr. Garber (Rep. Okla.) and H. J. Res. 43, Mr. Oliver (Dem., N. Y.). These resolutions propose a constitutional amendment giving Congress power to tax income derived from securities issued by the Government and the states. Ways and Means.

H. R. 1. Amendment to by Mr. Pittman (Dem., Nev.). This amendment proposes a tariff duty of 30 cents per ounce on imports of silver. Finance.

H. R. 6860. Mr. Williamson (Rep., S. Dak.). This measure suggests a duty of \$3 per ton on imported crude feldspar. Ways and Means.

H. R. 5715. Mr. Vinson (Dem., Ga.). This measure seeks to transfer calcium arsenate from the dutiable to the free list under the tariff law. Ways and Means.

Mr. Robinson (Dem., Ark.) proposed an amendment to a farm relief bill, unnumbered, for investigations by the Tariff Commission looking to reduction of duties on the following commodities: Steel ingots; sheets of iron or steel; tubular products; tinware; aluminum household utensils; electrical machinery and apparatus; limestone; magnesite; and hoop or band iron for baling cotton. It appropriates \$250,000. Agriculture.

S. Res. 52. Mr. McMaster (Rep., S. Dak.). This resolution proposes to put the Senate on record as favoring an immediate lowering of tariff schedules.

H. R. 5464. Mr. Andrew (Rep., Mass.). This bill provides that the President shall have authority under the flexible provision of the tariff law to place a duty on articles now on the free list if investigations justify. At present the law limits the action of the President in raising or lowering duties to articles on the dutiable list. Ways and Means.

H. R. 6667. Mr. Hull (Dem., Tenn.). This bill seeks to repeal the flexible tariff provision. Ways and Means.

S. 696. Mr. Robinson (Dem., Ark.). This bill proposes to reduce the membership of the Tariff Commission from six to four members. Finance,

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IMPORTANT BILLS REVIEWED IN THIS ISSUE

Revenue

H. R. 1—Tax Revision. Passed by House.

Metal Mine Depletion. King (D., Utah).
Silver Import Duty. Pittman (D., Nev.).

H. R. 6860—Feldspar Duty. Williamson (Rep., S. Dak.).

H. R. 5715—Free Calcium Arsenate. Vinson (D., Ga.).

S. Res. 52—Tariff Reduction. McMaster (Rep., S. Dak.).

H. R. 5546—Gold Tax Exemption. Englebright (R., Calif.).

Mining

S. 713—Depth Mining Patents. King (D., Utah).
S. 715—Mining Claims. King (D., Utah).
H. R. 496—Potash Development. Winter (R., Wyo.).
H. R. 68—Gilsonite Leases. Colton (R., Utah).
S. 1330—Salt Lake Mine Station. Smoot (R., Utah).
S. 788—Mine Experiments. King (D., Utah).
S. 1347—War Mineral Appeals. Oddie (R., Nev.).
S. 1251—Platinum Marketing. Watson (R., Ind.).
H. R. 5651—Arkansas Mine Station. Johnson (R., Ind.).
H. R. 6485—Indiana Mine Station. Johnson (R., Ind.).
H. R. 5811—Kentucky Mine Station. Kincheloe (D., Ky.).

Coal Regulation

S. 800—Fact Finding Agency. Copeland (Dem., N. Y.).
S. 676—Coal Mediation Board. Robinson (D., Ark.).
H. J. Res. 106—Government Coal Control. Berger (Soc., Wis.).
H. R. 207—Anthracite Standards. Luce (R., Mass.).

Oil Measures

S. 1512—Oil and Gas Permit Contests. Wheeler (D., Mont.).
H. R. 5783—Extension of Oil and Gas Permits. Douglas (D., Ariz.).
H. R. 476—Petroleum Reserve Royalties. Winter (R., Wyo.).
H. R. 5835—Petroleum Reserve Lease Control. Sinnott (R., Oreg.).
S. 832—Oil and Oil Shale Holdings. McKellar (D., Tenn.).

GOLD TAX EXEMPTION

H. R. 5546. Mr. Englebright (Rep., Calif.). This bill proposes to exempt from taxation income derived from the mining of gold in the United States, including dividends from domestic gold mining companies. Ways and Means.

S. 713. Mr. King (Dem., Utah). This bill seeks to authorize patents for lands containing at depth gold, silver, cinnabar, lead, tin, or copper. The patents will be restricted to 640 acres of land to each person or corporation applying to the Interior Department. Public Lands.

S. 715. Mr. King (Dem., Utah). This bill proposes to reenact with amendments sections 2325 and 2326 R. S., prescribing the method of obtaining patent to mining claims. This bill has been reviewed in previous issues of THE MINING CONGRESS JOURNAL, having been introduced by the Senator at recent sessions. Public Lands.

H. R. 496. Mr. Winter (Rep., Wyo.). This bill proposes to appropriate \$100,000 for the year ending June 30, 1929, and \$50,000 for each of the next three years for investigations by the Geological Survey and Bureau of Mines in potash development. It is proposed to expend this money in the construction of a plant and in the conduct of chemical engineering and manufacturing research for determining processes for recovering potash. Mines and Mining.

H. R. 68. Mr. Colton (Rep., Utah). This bill authorizes prospecting permits and leases on public lands for asphalt, gilsonite, elaterite, and other like substances. Public Lands.

S. 1330. Mr. Smoot (Rep., Utah). This bill appropriates \$1,000,000 for construction at Salt Lake City, Utah, of a plant for investigations by the Bureau of Mines. Mines and Mining.

S. 708. Mr. King (Dem., Utah). This measure appropriates \$500,000 for establishment at Salt Lake City, Utah, under the Bureau of Mines, of a research and experiment station to conduct investigations into the mining, preparation, treatment and utilization of ores and other minerals, including coal, oil, and gas, with a view to improving conditions in the mining, metallurgical and other mineral industries, safeguarding employes, preventing waste of resources, and for advancement of these industries. Mines and Mining.

WAR MINERALS

S.1347. Mr. Oddie (Rep., Nev.). This bill provides for appeals to the Court of Claims of dissatisfied claimants under the war minerals relief act. Mines and Mining.

S. Res. 47. Mr. Wheeler (Dem., Mont.). This resolution proposes an investigation by the Foreign Relations Committee of American concessions abroad, covering their source, by whom approved, correspondence by the United States in connection therewith, and government protection afforded American concessions in foreign lands. Foreign Relations.

S. J. Res. 38. Mr. Bratton (Dem., N. Mex.). This resolution proposes to grant authority to New Mexico to amend its constitution to provide a method for exe-

cuting leases and other contracts for development of minerals on lands granted to the state by Congress June 20, 1910. It is proposed that the state may make leases and other contracts, the royalties from which shall be used in aid of public schools. Public Lands.

S. 1251. Mr. Watson (Rep., Ind.), and H. R. 5639, Mr. Parker (Rep., N. Y.). the latter by request. These bills prescribe regulations for the marking of platinum imported into the United States or transported in interstate commerce. Interstate Commerce.

MINE STATIONS

H. R. 5651. Mr. Ragon (Dem., Ark.). To establish a mine rescue station and mine rescue car at Spadra, Ark. Mines and Mining.

H. R. 6484. Mr. Johnson (Rep., Ind.). Appropriating \$7,800 for establishing a mine rescue station at Terre Haute, Mines and Mining.

H. R. 5811. Mr. Kincheloe (Dem., Ky.). For establishment of a mine rescue station and mine rescue car or truck at Madisonville, Ky. Mines and Mining.

COAL REGULATION

S. 800. Mr. Copeland (Dem., N. Y.). This bill, which is similar to that presented in the last Congress, proposes regulation of the coal industry by authorizing the Bureau of Mines to act as a fact-finding agency to investigate various phases of the industry; for creation of boards to adjust labor relations; and emergency control of coal through a Federal fuel distributor. Labor.

S. 676. Mr. Robinson (Dem., Ark.); H. R. 92, Mr. Kelly (Rep., Pa.); H. R. 262, Mr. O'Connell (Dem., N. Y.); H. R. 275, Mr. Oliver (Dem., N. Y.); H. R. 397, Mr. Gallivan (Dem., Mass.); and H. R. 6671, Mr. Lindsay (Dem., N. Y.). These bills, which are identical, propose to create a board of industrial adjustments to settle strikes in the anthracite or bituminous industry. This board would consist of the Secretaries of Labor and Commerce and the Director of the Bureau of Mines. An appropriation of \$100,000 is provided. The Senate bill was referred to the Committee on Labor, and the House bills to the Interstate Commerce Committee.

H. J. Res. 100. Mr. Berger (Soc., Wis.). This resolution authorizes the Fresident to take over bituminous mines affected by the union labor suspension. It contemplates permanent retention of the mines by the government, the resolution declaring that "continued private operation of bituminous mines" is not in the best interest of the country. Pending the fixing of an adequate wage and issuance of rules for conduct of the industry, in which labor is to be represented, the miners are to return at their former wage. The resolution provides that leg-

the mines by an agency on which the workers shall be represented. Mine owners are to be paid for their property which the government takes over. The resolution refers to the failure of the conference called by Secretary of Labor Davis to settle the strike, which it is claimed was provoked by mine owners when they refused to negotiate a new

islation shall be passed for operation of

wage agreement. The resolution recites that "the mine owners have demonstrated their inability to conduct the industry or to bring order out of the chaos and anarchy which have prevailed since unrestrained and unregulated competition has been permitted to overdevelop the indus-

H. R. 207. Mr. Luce (Rep., Mass.). This bill proposes to regulate the quality of domestic anthracite by prescribing its size and limits of ash content. This bill has been previously reviewed in the MINING CONGRESS JOURNAL, having been introduced in former sessions. Interstate

Interstate Commerce.

Commerce.

S. 1455. Mr. Bratton (Dem., N. Mex.). This measure proposes a two-year extension on coal prospecting permits where the holders have been unable to determine the existence or workability of coal deposits, and for other reasons which the Interior Department may accept. Public Lands.

S. 767. Mr. Warren (Rep., Wyo.); and H. R. 479, Mr. Winter (Rep., Wyo.). These bills propose to grant prospecting permits or leases to a certain section of land in Wyoming. Public Lands.

S. 1512. Mr. Wheeler (Dem., Mont.). This bill provides for procedure in contests of oil and gas permits. Public

H.R. 5783. Mr. Douglas (Dem., Ariz.); S. 1311, Mr. Smoot (Rep., Utah); and S. 1155, Mr. Ashurst (Dem., Ariz.). These bills provide for a two-year extension of oil and gas permits in cases where the holders have failed to discover oil or gas or have been unable to begin drilling operations within the time now required. Public Lands.

H.R. 476. Mr. Winter (Rep., Wyo.). This bill proposes to grant 20 percent of receipts from lands in naval petroleum reserves to the states in which located for road and school purposes. Public Lands.

H. R. 5835. Mr. Sinnott (by departmental request). This bill proposes to transfer to the Navy Department the jurisdiction now exercised by the Interior Department over oil and gas leases on lands in the naval petroleum reserves.

S. 832. Mr. McKellar (Dem., Tenn.). This bill proposes to forbid an interest in oil or oil shale in the United States by those of other countries, in case those foreign countries deny equal privileges to such lands to Americans.

INDIANA OIL SHALES

(Continued from page 7)

a yellow, smoky flame emitting an odor of tar and sulphur. The preceding table shows the black shales in the geologic column with their average thickness and yields of crude oil per ton, according to samples collected and tested by Mr. Reeves.†

Shales were collected from four counties only, Clay, Vigo, Greene, and Sullivan, where the shales are well developed. Tests were made by destructive distillation with dry shale in an iron retort, under normal atmospheric pressure. Yields of oil, ammoniacal liquor, gas, etc., vary according to the temperature reached, the rate, and time of distillation. The crude oil has a specific gravity of 20 degrees Baumé, and a repelling sulphurous odor. The color of the lighter portions of the crude is red-brown, but

†Reeves, J. R., Part VI, Handbook of Indiana Geology, Dept. Conservation, Div. Geology, Indiana, 1922; pp. 1099-1105. the heavier distillates coming over last change the shade to a brown-black. The residue of shale in the retort cokes and swells into a viscuous mass, adhering firmly to the sides of the retort.

Some of the above-mentioned shales can be obtained in moderate quantities along their outcrops by stripping operations. The shale above the Minshall coal and above Coal V offer opportunities of this character. Others might be extracted underground with the coal bed over or under which they lie. In either case all bone coal, coal containing partings, refuse from the picking tables, etc., could be utilized in the shale plant, and even the coals themselves in the case of thin beds. However, the slight thicknesses of the shales at most points would prohibit development, even with highgrade shales. Judging from the present situation, it will be many years before the thinner shales of this type are extracted to produce motor fuel, unless the associated coal beds are utilized simultaneously for the same purpose,

SEABOARD STATES LEAD CONSUMPTION OF FUEL OIL

HE consumption of fuel oil in this country is largely concentrated in the states located directly on the sea coasts, says the United States Bureau of Mines, following a survey of gas oil and fuel oil distribution during 1926, conducted in cooperation with the American Petroleum Institute. Four-fifths of the national domestic deliveries of these oils were made in the states bordering the Pacific and Atlantic oceans and the Gulf of Mexico. Three states, California, Texas and Louisiana, accounted for 43 percent of the national domestic distribution. The survey, made by E. B. Swanson, economic analyst, covered a distribution of 340,481,000 barrels, amounting to approximately 97 percent of the oil marketed

Two-thirds of the gas oil and fuel oil marketed during 1926 was delivered for various shore uses, while the remaining third was exported or used as bunker oil on ocean-going vessels. Exports, including shipments to United States territories, totalled 38,351,000 barrels, or 10 percent of the total distribution; 84,988,000 barrels, or 22.5 percent, were delivered as bunker oil to ocean-going vessels, including army transports and navy vessels; and 255,493,000 barrels, or 67.5 percent, were delivered to commercial and industrial users within the United States.

Among domestic consumers, the railroads and oil refineries alone consumed as fuel nearly one-half of the total oil marketed. Railroads lead in consumption, having received 74,704,000 barrels, or 29 percent; oil companies consumed 48,846,000 barrels, or 19 percent, as fuel at the refineries or in the field; gas and electric power plants received 33,023,000 barrels, or 13 percent; smelters, mines, steel mills and foundries received 25,245,000 barrels, or 10 percent; and other manufacturing plants, 45,484,000 barrels, or 18 percent. Commercial and domestic heating accounted for 17,070,000 barrels, or 7 percent; 484,000 barrels were used as fuel on inland steamers; leaving a balance of 10,637,000 barrels, or 4 percent, for miscellaneous uses and non-segregated distribution by Atlantic Coast jobbers.

The 1926 demand for gas oil and fuel oil for commercial and domestic heating called for 17,070,000 barrels. Heating of office buildings, apartments, schools, hotels, hospitals, etc., required 14,266,000 barrels, while 2,804,000 barrels were delivered to homes for domestic heating. Inasmuch as this survey did not include furnace oils and the lighter distillates for domestic heating, the total shown under this classification does not represent the entire demand for domestic heating oils. A recent survey of the Bureau of Mines shows that the national demand for domestic heating oils, during the past burning season, was approximately 8,800,000 barrels, of which probably 6,000,000 barrels were furnace oils and lighter distillates. The survey shows a demand for the 1923-1924 burning season of 2,800,000 barrels; the 1924-1925 season of 5,000,000 barrels. and for the 1925-1926 and 1926-1927 seasons, approximately 8,800,000 barrels, with little change during the past two



Jesse B. Warriner



Jesse F. McDonald



J. F. Robinson

The AMERICAN MINING CONGRESS HOLDS ANNUAL CONVENTION

Outstanding addresses by members of the President's Cabinet, Senators and Congressmen, coupled with detailed dis-cussions of the activities of Government agencies in behalf of the development of the mining in-dustry, and splendid discussion by leaders in the industry itself, featured the Thirtieth Annual Conven-

tion of The American Mining Congress, which was held at the Mayflower Hotel, Washington, D. C., December first, second and third.

For three days the lobby of the May-flower, one of Washington's most mag-nificent hotels, was crowded with the elite of the mining industry whose number was augmented by Senators, Con-gressmen, prominent governmental de-partment officials and leading members of the legal fraternity. The entire convention was a kaliedoscope of dignified color, action and fraternal spirit. It was without question one of the most interesting meetings ever held by this organization, which has behind it an enviable record for its annual meetings.

Ringing declarations against Govern-ment interference in the mining industry, a hands-off policy in the development of mining standardization, a simplification of mineral taxation, modification of the anti-trust laws, legislating for natural resources, and a plea for the development of the mineral industry of the South, were keynotes of the convention.

Several hundred delegates comprising leading representatives of the various branches of the industry in all parts of the country were in attendance, and the interest in the daily sessions continued to the end on the afternoon of Saturday, December 3, when Senator

Sessions Featured By Important Addresses By Members Of Congress And Government Officials-J. G. Bradley Elected President -Bureau "Hours," Tax Simplification, And Mine Mechanization Prominent Topics On The Program

> James E. Watson, of Indiana, delivered important address against centralization of Government control through the creation of additional Federal agencies and bureaus. Through conferences conducted by officials of the Bureau of Mines, Geological Survey and Bureau of Internal Revenue, mining delegates were given a clearer conception of the functions and activities of these Federal agencies which are primarily concerned in development of the mineral industry without encroachment by Federal intervention.

J. G. Bradley, of Dundon, W. Va., president of the Elk River Coal and Lumber Company, and an outstanding leader in the coal industry, was elected president of the American Mining Congress for 1928. Mr. Bradley has been a member of the Board of Directors and activaly interested in the work of the actively interested in the work of the organization for many years. Other officers were elected as follows:

officers were elected as 10110ws:

First Vice President—Robert E. Tally,
Clarkdale, Arizona; General Manager,
United Verde Copper Company.

Second Vice President—George B. Harrington, Chicago; president, Chicago,
Wilmington and Franklin Coal Company.

Third Vice President—Lagge F. Mc. Third Vice President—Jesse F. Mc-Donald, Leadville, Colorado; president, Down Town Mines Company, and former

governor of Colorado.

Secretary—J. F. Callbreath, Washington, D. C.

Executive Committee — Mr. Bradley; Archibald Douglas, New York, of Douglas, Armitage and McCann; S. J. Jennings, New York, president, U. S. Smelting, Refining and Mining Company.

Directors for three-year terms
—Mr. Jennings; Mr. McDonald;
James F. Robinson, Miami, Oklahoma, Commerce Mining and Royalty
Company; J. B. Warriner, Lansford,
Pennsylvania, general manager, Lehigh
Coal and Navigation Company.

Resolutions were adopted by the convention as follows:

SOUTHERN MINERALS

WHEREAS it is the steadfast purpose of the American Mining Congress to stimulate development of mineral re-sources and to promote the welfare of the mining industry of the United States,

WHEREAS this organization has, during recent years made investigations of southern mineral resources and has found that in states in the South there are valuable deposits of zinc, lead, man-ganese, bauxite, kaolin, marble, clays and other useful minerals in commercial quantities that are susceptible of economic mining, therefore be it

Resolved, That this body earnestly commends the undeveloped fields in the South to the favorable consideration of the mining industry of the nation to the end that home industries may be fostered and have precedence over foreign fields in supplying minerals American needs in commerce and industry.

LEASING LAW

WHEREAS the administration by the Federal Government of the Leasing Act



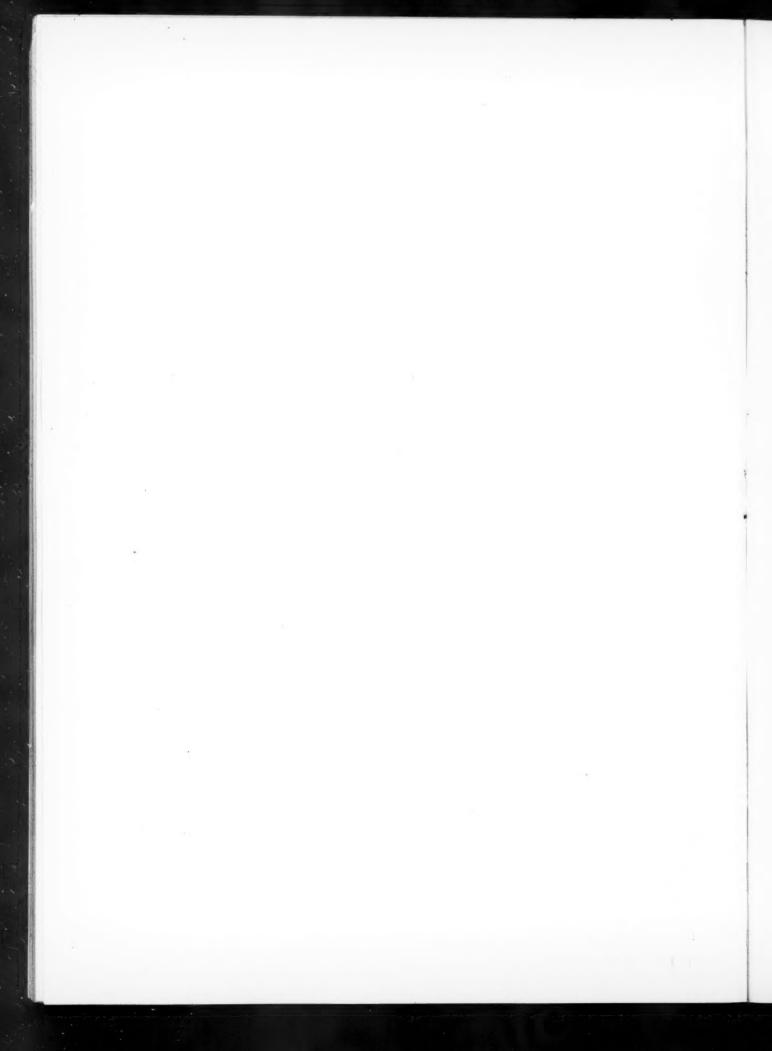
J. G. Bradley



President of The American Mining Congess.

President of the Elk River Coal & Lumber Co.,

Dundon, W. Va.



of 1920 and its construction of the Minor 1920 and its construction of the Mining Laws of the United States in connection therewith has entailed great loss and imposed much hardship upon citizens holding claims and leases upon the public domain, and has created serious apprehension and dissatisfaction in the mining regions of the West, and

WHEREAS disputed questions of propwhereas disputed questions of property rights and privileges arising between the United States and such citizens are determined arbitrarily by the administration itself without right of appeal to the courts of the land, and

WHEREAS this practice tends to discourage and suppress mining and prospecting enterprises necessary for the future development of the industry and penalize rather than reward the citizen who discovers minerals upon the public lands, and

WHEREAS the purpose of the mining laws is to encourage mining enterprises and American citizens are entitled to have questions affecting their rights determined by a judicial tribunal, and

WHEREAS the mining industry of the West believes that the mining laws should be construed in accordance with enactments and judicial decisions: Now

therefore be it

Resolved, That the American Mining
Congress make a thorough investigation of the administration of the Leasing Act of 1920 and report at the next annual meeting with its recommendations.

MINING APPROPRIATIONS

WHEREAS the mineral industry is whereas the mineral industry is being seriously hampered by reason of insufficient appropriations for the support of the U. S. Bureau of Mines and for the U. S. Geological Survey, and Whereas the splendid work in research and experimentation, which has heretofore been carried on so successions.

search and experimentation, which has heretofore been carried on so successfully by the Bureau of Mines and which has been so valuable to the industry should be continued and expanded, and WHEREAS the U. S. Geological Survey should be enabled to complete the topographical mapping of the United States, as provided for in the Temple Bill, and to extend its activities in Geological mapping stream gauging and land classimapping, stream gauging and land classification: Therefore be it

Resolved, That the Director of the Budget, the Secretary of Commerce, the Secretary of the Interior and the Congress of the United States be earnestly requested to give proper and sympa-thetic consideration to these needs and make adequate financial provision there-

TAX RETURNS

WHEREAS the repeal has been proposed of the provisions for consolidated returns existing in the present as in prior revenue acts, and

WHEREAS these provisions have been adopted for the purpose of having the tax fall only on the true net income of affiliated corporations and in practice it has been found that these provisions have generally operated with a fairness and equity which would not have existed if the tax had been levid geldly on the if the tax had been levied solely on the basis of separate return, and

WHEREAS their abolition would complicate rather than simplify the situation and would increase rather than reduce the work required in the preparation and the audit of tax returns: Therefore be it

Resolved, That the American Mining Congress for the foregoing reasons and



Hon, Nicholas Longworth

others, hereby urges that the provisions for consolidated returns should be continued in the now-pending act substantially as they stand in the Revenue Act of 1926 and as now administered by the Treasury Department.

RESOLUTION OF THANKS

Resolved, That the thanks of the convention be extended to the Mayflower Hotel for the excellent accommodations and service furnished in connection with the meeting; to the press for its com-plete and accurate reports of the pro-ceedings; to the officers of the various sessions; to the speakers who addressed the convention; and to the many others who contributed so substantially to the success and enjoyment of the occasion;

Be it further resolved, That the convention hereby express its appreciation of the efficient service rendered to the industry throughout the year by the officers and staff of the American Mining Congress, and especially for the noteworthy program provided at this convention.

A. G. Mackenzie, of Salt Lake City, was chairman, and Dr. E. H. Wells, of Socorro, N. Mex., secretary of the Resolutions Committee.

The convention was marked by a number of interesting social events, includ-ing a complimentary luncheon at the close of the first session; a reception and dance the evening of December 1; a luncheon meeting of the Board of Governors of the Southern Division and a ernors of the Southern Division and a complimentary luncheon to ladies accompanying the delegates given by Mrs. J. F. Callbreath at the Congressional Club on the second day; the annual banquet the evening of December 2; and a luncheon meeting of the Board of Governors of the Manufacturers' Division the measures of December 2. sion the morning of December 3.

Dr. H. Foster Bain, of New York, secretary of the American Institute of secretary of the American Institute of Mining and Metallurgical Engineers, presided at the opening session Thurs-day morning, December 1, in the absence of William Loeb, of New York, of the American Smelting and Refining Com-pany, on account of illness. "Mining

the Keystone of Industry" was the topic for discussion at this session.

MINERAL USE

Wm. H. Lindsey, of Nashville, delivered his annual address as President of the American Mining Congress, in which he reviewed the varied activities of the organization during the year. Secretary of Commerce Herbert Hoover made an important contribution to the proceedings in an address on the economic importance of mining, declaring that the Government is not interested in control Government is not interested in control of the industry, but is concerned with the proper utilization of mineral resources. A plea for unity in natural resource industries by which injurious competition may be eliminated was made by Sidney J. Jennings, president of the U. S. Smelting, Refining and Mining Company. The addresses of Secretary Hoover, Mr. Lindsey and Mr. Jennings are given in full in this issue.

Reports on conditions in the metal

Reports on conditions in the metal and coal industries and on prospects for mineral development in the South were made following the luncheon to the delegates at the close of the morning session.
A. G. Mackenzie, of Salt Lake, secretary
of the Utah Chapter of the American of the Utah Chapter of the American Mining Congress, spoke of the wonderful mineral resources of Utah. Conditions in the lead and zinc industry were outlined by Julian D. Conover, of the Tri-State District, and E. W. Parker, Philadelphia, director of the Anthracite Bureau of Information reported on the anthracite situation. A plea for active interest by mining operators in southern minerals was made by Judge J. H. Hand, of Yellville. Arkansas, a member of the of Yellville, Arkansas, a member of the Board of Governors of the Southern Division, who referred to the important work of the American Mining Congress in focusing attention on southern min-

The afternoon session of December 1 was presided over by J. G. Bradley, of Dundon, West Virginia, president of the Elk River Coal and Lumber Company. This session was devoted to a discussion This session was devoted to a discussion of legislation affecting natural resources. The principal address was by Senator Tasker L. Oddie, of Nevada, chairman of the Senate Committee on Mines and Mining, who opposed regulation of the oil industry and urged more adequate appropriations for the Bureau of Mines and Geological Survey. The Senator's address appears in full in this issue.

BUREAU OF MINES HOUR

The first of the three sessions devoted to detailed consideration of the work of Government bureaus in the interest of mining was held the afternoon of De-cember 1 when Director Scott Turner and officials of the Bureau of Mines gave an intimate picture of the varied operaan intimate picture of the varied opera-tions for that Federal agency in the min-ing field. Detailed reports of this phase of the convention will be published in the February issue of THE MINING CONthe February issue of THE MINING CONGRESS JOURNAL. A summary of the addresses follows: O. P. Hood, on the work of the technologic branch; C. E. Monroe, explosives; A. C. Fieldner, experiment stations; H. H. Hill, petroleum and natural gas; Daniel Harrington, the mining division; Dr. Andrew Stewart, helium; G. S. Rice, mining engineering; C. P. White mining economics and coal: mining division; Dr. Andrew Stewart, helium; G. S. Rice, mining engineering; C. P. White, mining economics and coal; F. J. Katz, mineral statistics; C. E. Julihn, common metals; F. L. Hess, rare metals and non-metallics; Dr. R. R. Sayers, health and safety; and J. H. Hedges, administrative.



Banquet of the Thirtieth Annual Convention

Questions concerning State's rights, individual initiative, and centralized Government occupied the morning session December 2, which was presided over by Carl Scholz, mine operator of Charleston, W. Va., who has been connected with the American Mining Congress for 20 years, taking an active part in all of its work. A report on the state of the mining industry in New Mexico was made by Dr. E. H. Wells, of the New Mexico School of Mines of Socorro. The incapacity of the Government to regulate industries was strikingly pointed out by former Representative Phillip P. Campbell, of Kansas, in an address on "Federal Control—the Bugaboo of Industry," which appears elsewhere in this issue. Other speakers at this session were A. Cressy Morrison, of the Union Carbide Company of New York, and Representative Lewis W. Douglas, of Arizona. Mr. Morrison said the United States was justified in keeping out of the League of Nations and Mr. Douglas discussed the hydro-power industry. Their addresses will be published in the February Mining Congress of the South.

The Board of Governors of the Southern Division at their meeting decided that the 1928 sessions of the Southern Industrial Development Conference should be held March 15, 16 and 17, at a southern city to be decided upon later by the Executive Committee. Cities inviting the conference were Jackson, Meridian and Gulfport, Miss.; Chattanooga and Nashville, Tenn.; Roanoke, Richmond and Norfolk, Va.; Asheville, N. C.; Hot Springs, Ark.; Atlanta, Ga.; New Orleans and Monroe, La.

Important addresses on the application of the anti-trust law to the mineral industry featured the afternoon session of December 2. The proceedings of this session, the presiding officer of which was H. N. Taylor, of New York, of the U. S. Distributing Corporation, appear in detail in this issue.

MINE MECHANIZATION

An important mine mechanization conference was held the afternoon of December 2, at which the principal speakers were Dr. L. E. Young, vice president

of the Pittsburgh Coal Company, and G. B. Southward, mechanization engineer of the American Mining Congress. These addresses will be published in the February issue of THE MINING CONGRESS JOURNAL.

Nationally known speakers and entertainers participated in the proceedings following the annual banquet the evening of December 2. G. A. O'Reilly, vice president of the American Exchange, Irving Trust Company of New York, was toastmaster, and Speaker Longworth, of the House of Representatives, was the principal speaker. The entertainment features were by Strickland Gillilan, of Baltimore, nationally known humorist, and members of the Roxy radio entertaining organization of New York. Mr. Lindsey and Mr. Bradley also spoke briefly. "I know of no organization which so completely exemplifies the new conception of the controlling importance of facts as does the American Mining Congress," said Mr. O'Reilly. "It is essentially an institution of facts. It has been successful and has established for itself a reputation that is authoritative and high." He said the appearance on the program of so many distinguished Government officials conferred a high honor upon the efficiency of the American Mining Congress.

Speaker Longworth referred to the fact that the mining industry is one of the great basic industries which has contributed to the growth and prosperity of the country.

Mr. Bradley, the new President of the American Mining Congress, pledged his service to the development of the mineral industry.

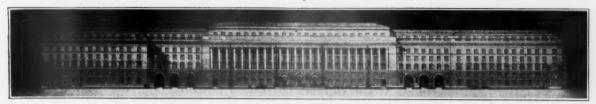
MINE TAXATION

Mine taxation occupied the attention of the delegates at the morning session December 3, which was presided over by Paul Armitage, of New York, chairman of the General Tax Committee of the American Mining Congress. The work of the Internal Revenue Bureau in acting on mine tax cases was described by the following officials of the bureau: Sam P. Hatchett, E. P. McCrorken, Lloyd Gibson, Warren C. Grimes, and W. T. Cardwell. Mr. Armitage gave a

comparison of mining and other industrial enterprises from a taxation standpoint. C. D. Hamel, of the Joint Committee on Internal Revenue Taxation, spoke of simplification of the revenue system and Robert N. Miller on tax procedure in the bureau. H. B. Fernald, of New York, spoke of desired revision of the tax law. Mr. Fernald's paper and a summary of the addresses of the bureau officials appear in this issue. Those of Mr. Armitage, Mr. Hamel and Mr. Miller will appear in the February number.

Archibald Douglas, of New York, presided over the morning session December 3, at which D. D. Potter, of Denver, president of the Federal Shale Oil Company, spoke on the oil shale industry. His address will appear in a subsequent issue. The annual standardization conference was held, presided over by Col. W. R. Roberts, of Chicago, president of the Roberts and Schaefer Company. Dr. George Otis Smith and administrative chiefs of the Geological Survey explained the activities of that agency in mining. These officials included W. C. Mendenhall, G. F. Loughlin, Philip S. Smith and Herman Stabler. The proceedings of the standardization conference and the addresses of the officials of the Geological Survey will appear in the February Journal. The Geological Survey discussion continued into the afternoon session, which was concluded with an address by Senator James E. Watson, of Indiana, against Government interference in business and creation of additional Government bureaus, which, he said, added to the expense of administering the Government, which in turn is reflected in high taxes.

At its meeting the Board of Governors of the Manufacturers' Division decided to hold the 1928 session of the Annual Convention of Practical Coal Operating Officials and Exposition of Coal Mining Machinery and Equipment early in May. Selection of the convention city was left to the decision of the Executive Committee. Cities inviting the convention were Cincinnati, Cleve'and, Columbus, Philadelphia, Louisville, French Lick, and Indianapolis.



Architect's drawing of the new Department of Commerce Building in Washington

ECONOMIC IMPORTANCE of MINING to the NATION*

By HON. HERBERT HOOVER †

I T IS always a pleasure for me to join in the American Mining Congress, for not only has my own professional life been closely linked with the industry, but the Secretary of Commerce is specifically enjoined in the organic act creating that office to promote and foster the interests of the mining industry. And it is a vital part of our national

life. It is one of those industries without which the Nation could not go on for a week. It ranks second only to the agricultural industry in its contribution to our raw materials. Its production amounts to nearly 6½ billions annually, Its- production providing direct support to probably 10 millions of our people through employ-ment to about 2 million workers. But the industry has a greater importance than even these figures indicate, for with agriculture, forestry and water power it furnishes the raw materials upon

which the whole work of our civilization rests. When the raw ilization rests. When the raw materials of our mines emerge from manufacture with the added expenditure of labor and capital upon them, they have a whole-sale value of over 15 billions of dollars. And in this, the second stage of their application, they give employment to another

million workers and support to about 10 million more of our people. A large por-tion of these manufactured commodities must filter through the retail trade, and their total value when delivered to the consumer exceeds 20 billions of dollars. And from this distribution arises the support of many more millions of our people.

It is estimated that the products of agriculture, when they reach the consumer, with transportation, manufacturing and distribution costs added, have about the same value as the mineral in-dustries—each of them thus contribut-ing about one-quarter of our total national income.

No other continent has demonstrated its possession of such a magnitude of minerals as has ours and such a bounti-ful distribution over our whole land. But our mineral resources differ in one essential from our other natural resources—they are not renewable. Agriculture, forests and water power replenish their supplies from season to season. Some people conclude from the non-renewable character of the mineral supply that they want should be supply that they want should be supply that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that they want should be supplied to the supplier that th ply that they must shortly be exhausted.

practical question is one of time, time in these matters needs to be measured in generations and apprehension of exhaustion needs be tempered with many probabilities, including the advance in technical methods of extraction.
In some of our minerals, such as coal, and building materials, we through a knowledge of their geological structure and occurrence, make fairly good estimates of our reserves. We know that they will outlast many generations of Americans. In non-ferrous metals and oil, geology affords us no great basis for an estimate of future supply. We only know of the occurrence of minerals of this type by actual ex-posure of them, and we can thus make no estimates except upon reserves which have been proved by actual development in the process of mining. To develop

Mining Industry Vital To Our National Life Furnishing Raw Materials Upon Which Our Civilization Rests—Practical Conservation Tempered By Knowledge Of Reserves Plus Methods Of Extraction Advocated



Herbert Hoover, Secretary of Commerce

them ahead merely for national satisfaction of assured future supply would imply an unbearable waste of capital. The consequence is that in these groups there consequence is that in these groups there is never a demonstrable assurance of more than a few years' supply ahead of us. Yet we have never failed from year to year to find new deposits and extension of old deposits. We might add also that not every acre of this land has been fully explored as yet. Not a year goes by without new discovery.

All of us who have been engaged in

All of us who have been engaged in the mining industry realize the volume of ultimate supply is a factor of production costs and richness of deposit. Directly with cheaper extraction costs and higher prices for the minerals does the volume of available minerals in-crease. For instance, within our life-time we can remember when 5 percent

copper ore was not in most local-ities considered to be of extraordinary richness, and yet improvement in extraction methods alone has made 2 percent ore in most localities extremely valuable, and the volume of 2 percent ore is many thousand times that of 5 percent ore. I have no doubt that with moderate increase

the price of copper and with the improved extraction which we can look for at the hands of our chemists and metallurgists, the day will come when the content of a fraction of this will be considered within the estimates of future

There is another phase of the question which bears upon the maintenance of our civilization even against exhaustion of some of our minerals, and that is the ability to substitute one for another in practical use. We can, if need be, substitute aluminum for copper, glass for tin, zinc for lead, coal and shale distillation in replacement of free oil, and a score of other substitutions.

But despite these factors there is al-But despite these factors there is always some degree of national anxiety as to the future of these supplies, and from this anxiety flows the natural demand for conservation. I am one of those who believes strongly in all proper conservation and the utmost practicable elimination of wasteful production and wasteful

The industry and the Government has from time to time the responsibility to take stock of our mineral resources and to devise such measures of conservation as are practicable and possible. More particularly do practical measures lie within the realm of economical utilization and the elimination of waste in production. It is (Continued on page 20)

^{*}Address delivered before 30th annual conven-vention of The American Mining Congress, Washington, D. C., December 1, 1927. † Secretary of Commerce.

MINING the KEYSTONE of INDUSTRY*

By W. H. LINDSEYT

Mining Is The Keynote Of Human Progress-Upon Mining Rests The Welfare Of A Myriad

Of Other Industries-Mining Is Not Merely A

Matter Of Labor Disputes, Overproduction And

Other Problems, But Equally Involves Great

A S president of the Ameri-can Mining Congress, it is a genuine pleasure to welcome you to our Thirtieth Annual Convention. The Congress be-gan its activities something over thirty years ago, with only a handful of members. It has grown, year by year, until

today it represents 87 percent of the mineral production of the United States.

Naturally, our present commanding po-sition involves an organization commensurate with the importance of the work which we have in hand.

The subject assigned to me is a large one, indeed—MINING, the Keynote of Industry.

As far back as the records go, mining has been the keynote of progress of the human being. Whether we lean toward human being. Whether we lean toward the so-called Darwinian theory of human evolution or entertain the belief that the human animal was justly endowed by the Great Creator with a mind, it would appear that right there, with the attainment of mind, was the beginning of the first mine.

Man needed salt wherewith to make his food more palatable. So he found it—dug it—and the beginning of the world's greatest industry thereby had its

modest start.
That was the keynote.

That was the keynote.

Sometimes when our modern chefs serve us what would make an excellent meal but for the omission of a few grains of salt, we may find that we can understand the joy with which that first mining venture was hailed.

Park in these days it doesn't appear

Back in those days it doesn't appear to have been customary to keep statistics on the mining industry, nor does it now appear what sort of a tariff was deemed necessary to protect its infancy. The cal-endar—if one was used—was not the Gregorian of the present day; so we do not know what period of time elapsed before some ambitious miner discovered that the heating of copper enabled him to make a better weapon than his stone hatchet. But that time did come. Thus a new division of mining was born, and a new

And so, down through the ages, with the progress of the human mind has grown the needs for the things to be had only by mining. Today there is no indus-

try of which we have knowledge that is not based on mining.

It is the keynote of the modern method of tilling the soil. It is the keynote of the sowing, and of the reaping note of the sowing, and of the reaping— and of the marketing—and of the prep-aration of food. The fact is that but for mining, some of us would have to forego the pleasure of much of our eat-ing, and thus "gum up" our food. I, for one, am surely grateful for some of these mining industries. The clothes we wear, the houses in which we live, the vehicles which transport us, the music vehicles which transport us, the music

National Problems And Responsibilities

Wm. H. Lindsey

we enjoy, the lights which banish our nights, are possible only through mining. Somebody has just whispered that even our "medium of exchange"-(the means by which we accumulate resour-ces to enable us to have any or all of the things we want), is also based on mining.

Did I say mining was the keynote? Blest, if I don't believe it is almost the whole song!

Assembled around me today are some of the brightest minds, the ablest men in all these United States. All are familiar with the statistics showing the relative importance of the numerous branches of the mining industry. And, you all know how these industries are inter-dependent on each other-and on all industry-and that, therefore, on the success which our great mining industry attains depends the happiness and the welfare of a myriad of other industries and occupations.

Because we are the keynote of industry, because we must succeed ourselves enable others to succeed, others must prosper in order that we may succeed, we must merge our individ-ual welfare into a composite working organization, which will seek to serve in even greater measure the general good. And, in that service, we shall prove anew our right to represent this keynote-the greatest mining industry of all time.

Agriculture, often referred to as the keynote of industry, is essential. On that score there is no doubt wnatever. But, without mining, there would be no civilization to feed-and no need for agriculture.

MINING-Not a matter of labor disputes and over-production alone, not a matter of pipe lines, oil production and Teapot Dome affairs, not merely a question of sand, gravel, clays, limestone, cement and construction materials, not merely a discussion of silver and gold for specie and jewelry manufacture, not alone a supply of lead and zinc for storage batteries, or copper and aluminum for electric power lines, or of iron and manganese for bridges and buildings, steel rails and locomotives, motors and automobiles, but, MINING, as it in-volves the great national problems of Transportation and Taxation, Power, Labor, Immigration and Segregation the proper distribution of industry corelated to the sources of raw materials and the points of consumption; the economic development of national wealth, its distribution and utilization; the great international relation of countries and their economic resources; their interchange of necessary commodities; the effect on world commerce, tariffs, both domestic and foreign. These, and kin-dred subjects, which require the brain power of the world's greatest statesmen and leaders in American industry, are component factors which place mining foremost in the onward march of civilization.

The American Mining Congress represents literally 87 percent of the mineral production of the United States today.

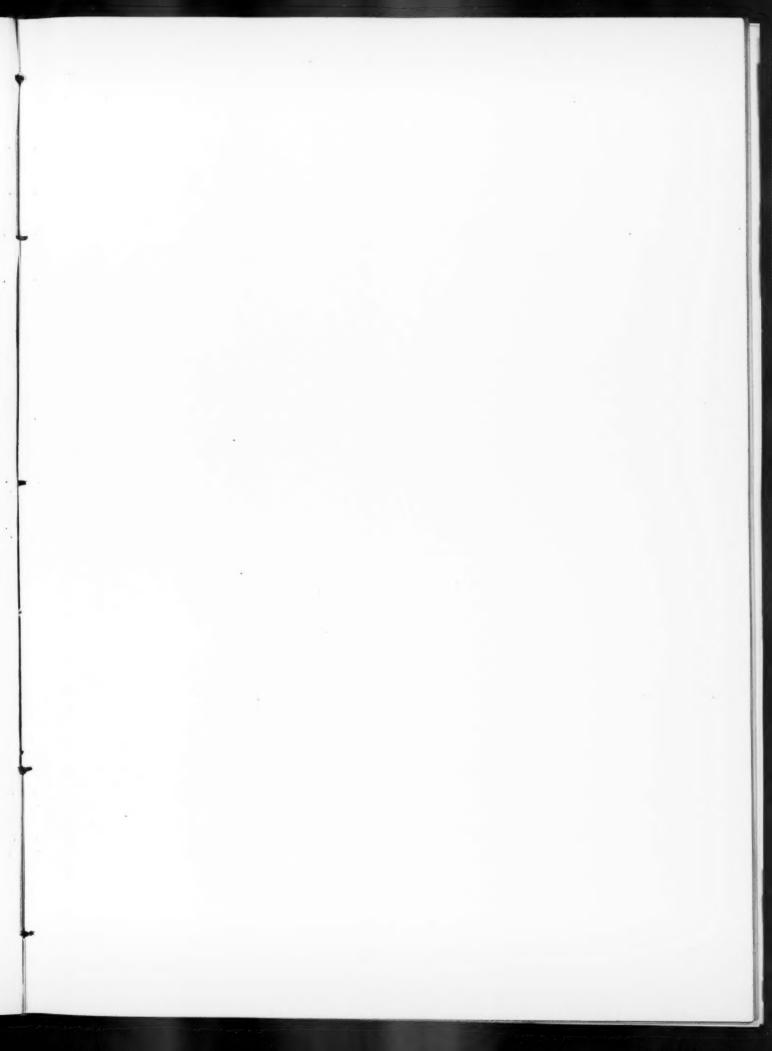
It is fitting, therefore, that not only the mining operators and splendid associations of the industry should meet here in annual conclave to discuss their common problems, but also that our chief executives; departmental heads; transportation chieftains; leaders in eco-nomic thought; bankers; representatives of labor; chemists and physicists; and the industrial giants who have flung power lines vast distances over mountains and plains should all gather for the common good, to here discuss how best our marvelous industrial leadership may continue to advance our high standards of living and for the promotion of our mutual welfare.

In my brief term of office, it has been my good fortune to meet some of the great minds which have made the American Mining Congress the cynosure of thoughtful men. I regret that I have not been able to meet each of you, but all with whom I have come in contact have given such cordial cooperationsuch helpful assistance—that I feel that I cannot be true to myself without an expression, at this time, of my grateful appreciation for all of these courtesies.

(Mr. Lindsey then outlined the activities of the American Mining Congress.)

^{*} Address delivered before Thirtieth Annual Convention of the American Mining Congress, Washington, D. C., December 1, 1927.

[†] President, Napier Iron Works, Nashville.





A Happy New Pear!

LEGISLATING for NATURAL RESOURCES*

By J. G. BRADLEY †

Legislation Not Necessary To Cure Industry's Problems-Extension Of Bureau And Commis-

sion Forms Of Government Decried-Economic

Law So Limited That Legislation Can Not Be

SUPFOSE that all of us lengaged in industry if we were asked whether we were in favor of legislating for natural resources would emphatically declare that we were not, and then perhaps it might be called to our atten-tion that "natural resources"

covers a number of other things besides the mineral products in which we may be interested. As, for instance, water power. Wouldn't it perhaps be a good power. Wouldn't it perhaps be a good thing to have the water power develop-ment restricted by law for the benefit of the coal industry? Legislation might be enacted in that direction. That might change the answer from one group of our membership.

Another thing is agriculture. Another thing is agriculture. Agriculture is a natural resource which has been struggling with this problem of legislation for it for the last four years. That is, the struggle has become acute in the last four years. It has raged up and down over a period of centuries. The passage of the corn laws in England was just one phase of this struggle of

The passage of the corn laws in England was just one phase of this struggle of legislation to cover natural resources. We find it here in its latest development, the McNary-Haugen bill, virtuously vetoed by our President.

Then there are the fish and game laws. Then there are the nsh and game laws. Of course there are some free spirits who would like to shoot game whenever they felt inclined, but probably the majority, the overwhelming majority, would be strongly in favor of legislation which restricted the unlimited catching of fish and the unlimited destruction of come. And perhaps it is on the considerate. game. And perhaps it is on the consideration of that question that we can get the most light on this question of natural resource legislation. There is a case where we all feel that the fish and game laws should have been enacted, and should be supported; perhaps they should be changed in some small particular in this state or that, but nevertheless we are in substantial agreement that fish and game legislation is excellent legislation to support.

Then we come to that class of legislation which is supposed to conserve the tion which is supposed to conserve the mineral product in which we are engaged as our life work. There it is a different question: whether there ought to be a restriction put on the amount of coal that we get out every year for the benefit of the future; whether the wastes of industry ought not to be surved by logic. dustry ought not to be curbed by legis-

lation.

The same thing applies to oil-perhaps nct so much to some of the other mineral products. But take copper. The time has been when the copper producers probably did not know but what it might be a good thing to have the production of copper curbed and restricted so that those who were already in the business could make a living by mining and smelting.

Devised To Curb It-Legislative Shackling Of Industry Should Not Be Tolerated You see it is not a simple problem. And yet we of the mining industries in principle I think, are 100 percent against restrictive legislation. But why? The reason is that that restrictive legis-

lation is really a legislation which interferes with the economic development of the country, of the country's business,

of our lives and our relationship with one another.

Experience has shown us that our knowledge of economic law is limited to such an extent that as yet no man has devised legislation to curb it, whose effect he could accurately gauge. That is the trouble. We put a legislative dam in the stream of economic flow and we can not be sure what lands we are going to over-flow. We can not be sure but what the economic flood will pile up back of that dam and sweep out the dam and everything that lies beyond it. There is the difficulty.

I think there is still another difficulty. a difficulty that goes a little bit deeper than that, perhaps a good deal deeper than that. It goes back into the history of law itself, this habit of legislating. In the first legislative bodies, upon which ours is modelled or of which ours is a development, the members only came together to consider the raising of money to carry on public affairs. In England that was to raise money for the King's revenue. With us there has never been that period of development. Our legislatures came into existence after the legislative bodies had begun to make substantive law. And probably the making of substantive law will have to continue in this legislative development, until there is such an overweight of law, such a mass, a tangle, a wilderness of laws as even we do not yet imagine. We think there are too many laws today—we feel quite sure of it. There are. But we are not able to stop this continued law making. The feels ing. The feeling against it is not suffi-ciently widespread to keep our legislators from rushing in where angels fear to tread, and when you analyze the make up of those legislative bodies you know the answer why.

If this question of law making were what it had been under the common law merely the judicial regulation of our rights toward one another—we would not be in the state of mind that we are in today, fearful, for instance, of what the next Congress is going to do. Fearful of what our next state legislature is going to do. Fearful that they will get the ear of some unbalanced minority. We have reached a point in this legislative development where it is the minority, the noisy minority, the minority that can make itself heard, the minority that can threaten to make itself felt, that is dictating the laws, which these legislative bodies enact.

Now it seems to me that we should face the situation as it is, that we should make as it is, that we should make it clear by a process of edu-cation as widespread as we can make it, by shouting, if we have to shout, by threat-

ening, if we have to threaten, and by returning to civil life if neither our arguments nor our shouts nor our threats are of avail, those legislators who persist are of avail, those legislators who persist in shackling industry with this restrictive form of economic legislation. It is right that I should not be allowed to agree with somebody else to form a monopoly of the product in which I am interested and victimize the rest of the community, but it is not necessary to have coal legislation or copper legislation to prevent my doing that. The legislahave coal legislation or copper legislation to prevent my doing that. The legislation that is necessary for that is the law which was handed down in England by the common law judges. The control of monopolies was just as sufficient, except those that were definitely granted by the Crown, by the English common law judiciary, and probably more effectively so than it is by modern American legislation, because the modern American legislation is inflexible.

It is as the result of an effort to meet that inflexibility that we have seen com-missions appointed. The legislators real-ize that there must be judgment exercised in the enforcement of the law, and cised in the enforcement of the law, and so they think to solve the problem by creating a commission. But within a few years that commission's arteries have begun to become hardened. It has fossilized. It is composed not of the few commissioners originally appointed, men selected for their judgment, their intelligence and their knowledge of the subject, but the commission itself is composed of but the commission itself is composed of political appointees placed in office be-cause they have served somebody else in getting into some other office, or because they have written for a newspaper. And back of those commissioners is a body of bureaucrats, and that bureaucratic body really composes the commission. It affects the judgment of the commissioners themselves, it creates a state of mind and attitude and viewpoint from which the commissioners look at the problems that are brought before them, and it is just as inflexible as a law would have been which had been passed undertaking to deal with every possible and specific turn of events in detail.

I believe that the American public is much better economically educated than it was 10 years ago or 15 or 20 years ago. I believe that the American newspapers, the American workmen are be-ginning to understand something about economic trends. I believe that there is much more intelligence shown toward the examination of business problems by the man on the street than there ever was in this country before, and I believe that we in industry who fear this legislation are backed up by that body of intelligent citizens. One reason perhaps why I believe so, is that I have seen the United Mine (Continued on page 20)

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A PLEA for UNITY in NATURAL RESOURCE INDUSTRIES*

By SIDNEY J. JENNINGS †

WHEN your secretary asked me to address you on the subject of "Unity in Natural Resources," my mind naturally focused on the word "unity." Just what kind of unity can be had in natural resources?

These fundamental bases of

our material wealth are vast and diversified, consisting, as they do, of minerals, oil, lumber and water power. They are spread over a vast territory and occur under the most varied conditions. The problems confronting the acquisition, development, taxation and sale of the products of natural resources, all seem to present differences of a fundamental nature.

fundamental nature.

A brief review of the history of the means by which private citizens have acquired in the past and now acquire coal, oil, gas, certain other minerals, and water power from the Federal Government shows a change from the former practice of granting these rights in fee to a practice resting on the conception of the Federal Government as a land. of the Federal Government as a land-lord who will only grant a lease. In granting this lease the government natu-rally reserves to itself the right to determine under what conditions these re-sources shall be developed.

The development of natural resources

is, however, still conducted almost exclusively by private people for the hope of profit. Public opinion seems to be reaffirming the conclusion that this reafirming the conclusion that this method of developing the bases of wealth is the one which, on the whole, produces the best results; that is, promotes the greatest good of the greatest number. Undoubtedly this method tends to make muriduals take of the cream and leave the skim milk of these resources for fu-

ture generations.

The effect of taxation upon the development of natural resources is enormous. Wasting assets like coal, oil and other minerals, slow-growing assets like forests, and what might be called permanent assets, like developed water power, can not be taxed by the same method. If we want to control the Mississippi River, develop the power of the St. Lawrence, control the floods and utilize the stored water of the Colorado River or use the Columbia River for power and irrigation, we must adopt different methods of taxation and development than those which would be applicable to the fostering of the reforestation of the States of the Northwest and the Canadian borders or to the development of wasting assets like minerals and oil. mous. Wasting assets like coal, oil and erals and oil.

The sale of the products of the development of natural resources, other than water power, is regulated by in-tense competitive effort to dispose of a superabundance of products. The sale of developed water power is more a matter of service than price, although, of

Development Of Natural Resources By Private People Acknowledged As One Producing Greatest Good To Greatest Number-Two Major Opportunities For Unity-Cut Rate Price And Over Production Should Be Carefully Considered By Associations Representing Industry



Sidney J. Jennings

course, the price must be a reasonable one, so that those using developed water power can compete with those using

power developed from other sources.

From this bird's-eye view of the many problems confronting the development, taxation, and sale of the products of natural resources, two possibilities of unity seem to emerge. If instead of the unity seem to emerge. If instead of the intense competitive struggle to develop more and more these great sources of wealth some form of coordination could be adopted by which only sufficient of the natural resources would be developed and developed in time to supply the effective demand for the same, there would result a more efficient use of the total result a more efficient use of the total products of the subsoil of the country, although possibly some of the skim milk of these resources might have to be absorbed by the present generation in-stead of leaving it for the use of the future.

Also, if some form of cooperation could be brought about by which the prices of the products of the subsoil of this country were stabilized at a figure closely approximate to or even higher than the average figure for a term of

years not only would the producer of these products be benefited but the manufac-turer would be less dependent upon gambling in his raw materials for his profit, and the ultimate consumer would be benefited by having a more uniform and more closely figured price.

A careful investigation of the prices that have been obtained for certain of our products, such as coal, oil products and copper, much of which has been shipped abroad, shows that we have been dispossessing ourselves of natural re-sources in large measure for the benefit of other nations at a price which will not permit of a replacement of these resources when exhausted.

The opposition to government going into business and the effort to remove government from businesses which it has undertaken, which could be performed by private individuals, meets with my

ordial cooperation.

The genius of the American people is to adopt any political method which will produce the beneficial results that are desired, and they do not believe in being governed by slogans. A proposal which seems to have merit should not be condemned because some one has called it a bad name. It seems possible that some form of cooperation between the private development of natural resources and the development of natural resources and the regulation by government, of the wasteful overproduction of materials, which results in a cutthroat competition of prices, would result in a benefit to all, and this is the unity that I plead for. Each industry in its own association should carefully consider the problem of overproduction and cut-rate prices and see if by means of cooperation within itself, which in many instances can only be brought about by change in the present laws or by some new regulatory law of the Federal Government, the waste above pointed out can not be eliminated.

George Otis Smith, director of the U. S. Geological Survey since 1907, will be president of the American Institute of Mining and Metallurgical Engineers during 1928, barring the remote possibility that an opposition ticket might be placed in the field and elected over the candidates named by the official nominating committee. This committee, headed by R. V. Norris, has named the following ticket to be placed on the official ballot that will be sent to the members by mail before January 1, 1928.

For director and president-George Otis Smith.

For director and vice president-W. H. Bassett.

For director and vice president-George D. Barron.

For directors-H. C. Bellinger, Robert E. Tally, Karl Eilers, J. V. W. Reynders, and H. G. Moulton.

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FEDERAL CONTROL of INDUSTRY*

By P. P. CAMPBELL †

HAVE been asked to dis-I HAVE been asked to dis-cuss Government control of mineral resources. After reviewing the question, I find it will be very difficult to contribute anything new to the discussion of this subject. It would not be out of place, how-ever, to look at the failures of government control and contrast the results that have been attained by private enterprises.

It must appear to its advocates that government control is a panacea for every ill and that superior wisdom, extraordinary ability, and super-power to master industrial conditions and business problems are inherent in the government. They say, "Let the government do it if it is a big problem." I give second place to no one in my great admiration for the genius and spirit of our governmental institutions. No organization has ever been planned for the con-trol of national and international affairs

of a people comparable to that provided in our governmental scheme. As the government has been created it is well adapted to administer such national and international affairs as those in which our people may from time to time be in-terested. But it does not follow that a scheme of government that is thus adapted to such national and international governmental questions as concern a great people is also fitted to manage or control the production of the soft and hard mineral resources of the United States.

When the government acts it acts through human agencies. Service has developed many competent clerks, accountants, stenographers, lin-guists, and scientists. The Geological has developed some splendid al geologists. The Bureau of Survey theoretical geologists. Mines has studied and demonstrated some theories that are of unusual interest to miners. The Bureau of Standards has made tests of materials that are of great value. But experts in the Geological Survey and the Bureau of Mines would not necessarily make good mine superintendents or even pit bosses, and the experts in the Bureau of Standards would probably have great difficulty in laying out a tank farm and building tanks and lay-ing suitable pipe lines for carrying petroleum products. My experience with government bureaus and commissions has given me a very high regard for the per-sonnel of such bureaus and commissions as are engaged in the ordinary conduct of the government's business. at his best is an expert in his line. knows where the papers are, the law enacted and how it applies to the particular matter that comes over his desk. Years of devotion to a particular line of work has made him an expert in his particular line. It does not follow that one lacks confidence in his ability when he would not place the operations of an

Reversion From Bureaucracy To Representative Government Urged-Incompetency Of Government In Industry Demonstrated-Government Has Great Function Which It Alone Can Exercise, And Industry Equally Has Its Function Which Does Not Require Government Interference Or Dictation

industrial enterprise under his control. Such a work is out of his line.

But there is an impression that if one appointed or elected to a position in the government-local, state, or national-that he at once becomes endowed with an ability that his neighbors and friends never gave him credit for. Old Bill Williams, of Big Creek Township, was a fairly good farmer. None of his neighbors ever credited him with having a knowledge of the law and being competent to advise them with respect to legal matters. He was elected a justice of the peace, and overnight his neighbors assumed that he had been endowed with legal wisdom to such a degree that he would be a suitable adviser on legal questions. Justice-Elect Williams went to Justice Fawler, a neighboring justice, who had had many years of experience, and said: "I want to quality as a justice of the peace." Justice Fawler said: "I will swear you in, but all hell can't qualify you."

Electing a man governor of a state, or senator from his state, or even President of the United States does not endow him with that superhuman wisdom and ability that qualifies him to conduct or control the intricate business that the American people, with great pains and rare skill and ability, have developed under private

Let me call your attention to the way

P. P. Campbell

the government lets its own affairs run. The government owns large areas of timber land carrying millions of feet of lumber. It has or controls immense acreage of mineral lands bearing all kinds of mineral. It has also assumed jurisdiction and control over streams susceptible to developing enormous water power.

It is said that millions of feet of timber ripen and waste every year on government timber lands. It has not discovered or developed producing mines of coal, or gold, or silver, or lead, or zinc from all the lands bearing these ores under its ownership or control. It owns or controls immense areas of land bearing oil and gas, and it has not dis-covered and produced under its own initiative a single barrel of oil for the manifold uses for which oil is used by the government. Millions of water horsepower run on aimlessly to sea while the government refuses to lease the power and is unable to develop it on its own account. Natural resources are either dormant or wasting; a great power on countless streams wastes its energy on its way to the oceans. It is within the memory of all that when the government operated railroads, express com-panies, telegraph and other great business agencies there was such a gross lack of management as led to waste, extrava-gance and incompetency never known before or since in connection with any of the enterprises whose operation and control the government undertook. be tedious to go into detail and it is not necessary.

The government can not operate or properly direct industrial or transportation enterprises. The successful opera-tion and management of these enter-prises is inspired by the hope of individual reward for individual effort. It was under this necessity that they have been successfully developed and managed, and it is through this inspiration that our natural resources have been discovered and developed and our business enterprises built up and our lines of transportation extended. All these enter-prises have been brought up to a degree of efficiency and prosperity never before experienced by any people in the prog-ress of civilization.

The emergency of the Great War de-manded immediate production and quick delivery. When the production and quick delivery. When the production of commodities was left to private enterprise, the production was made. When the production was taken over by the government, the people froze or had fireless. When transportation was in the hands of private enterprise, delivery was speedy; where transportation was under the control of the government, it went to the point of destination with leaden feet if it went at all. Private enter-prises retained the control and operation of the oil industry, and oil and all oil products were delivered when and where required in such quantities as we needed for all purposes. The government under-

*Address delivered before 30th annual conven-vention of The American Mining Congress, Washington, D. C., December 2, 1927. † Attorney at Law, Washington, D. C. Former member of Congress from Kansas.

took the regulation of bread products, and many of us learned to eat bran and have been eating it ever since. Private enterprise retained the control of meat products, and meat was supplied and delivered wherever and whenever wanted. Everything that government placed its hands upon was struck as with a blight, and everything left to individual enterprise was conducted with efficiency and promptness.

These objections to government control could be multiplied indefinitely. The people of the United States paid last year over ten and a half billions of dollars for government—local, state, and national—and it wasn't worth it. An individual or two with an overheated imagination conceives the idea that another bureau is necessary to contribute to the common welfare. Magazines and newspapers give publicity, the agitation grows, socialists and communists of all shades and degrees from the highbrow to the lowbrow take up the hue and cry, and Congress is impressed and a bureau, with a chief and a few clerks, is created. In a few years it becomes an immense organization covering blocks of rented space in Washington, with layers of people three stories deep accomplishing nothing useful or that contributes to the common welfare of the people. Bureaus and commissions always grow in size.

Bureaus and commissions have taken over the government of a once free people. We have become a bureaucracy with bureaus exercising control over every activity of the people in every walk of life. The bureaucrats are not elected or otherwise chosen or appointed by the Bureaus and commissions, in many instances, are a terror to the citizen. They exercise a control far beyond anything contemplated by the law that created them. This is the common experience of the average American today, whether his business be great or small. The day should come, and no doubt will come, when there will be a return to representative government in the United States, and the people will again be free to conduct their own affairs under laws that are commonly understood to regu-late the relations of men and communi-ties to each other. The inauguration of such a day should be looked forward to with the hope of an early dawn, rather than that we should stand trembling as the evening shadows of another federal bureau come on.

ECONOMIC IMPORTANCE OF MINING TO NATION

(Continued from page 15)

in these directions that the Department of Commerce is concerned. It is not concerned in interference in the conduct of the industry, but solely in promoting im-

proved methods of extraction and use through economic and scientific research. The mining industry, realizing its re-sponsibility, itself inaugurated these sponsibility, itself inaugurated these services of the Government, and through its insistence has emerged the Bureau of Mines and the special services given by the Bureau of Standards and the Bureau of Foreign and Domestic Commerce in the Department of Commerce, and the Geological Survey in the Department of Interior. The industry has not asked much of the Government in these directions, the total of our expenditures upon such services directly for the benefit of the industry being less than \$4,000,000 per annum. I do not think anyone will complain of these demands upon our Government, when we remember the vital character of the problems involved and importance of the industry. The actual returns to the American people in saving of waste, cheapening of production and distribution, and the saving of life amount to many thousand per-cent. Incidentally the minerals industries in their raw materials stage alone pay direct taxes to the Government amounting to over five times all the other raw material industries put together.

I need not enlarge upon the service of these Government agencies in research and otherwise. They are daily in con-tact with you throughout the country, and the various officials of these bureaus will, no doubt, speak to you of the prog-ress of their work.

This department is at all times interested in the economic situation and prog-ress in the mineral industries. Their stability is a large part of the stability of the whole country. If we examine the price levels of our important minerals, we shall find that they are, compared with prewar, below the average level of all commodities, except perhaps in the case of anthracite coal and lead. The case of anthracite coal and lead. The miner and the farmer have a joint com-plaint that the price levels of their com-modities are both below the relative aver-age price levels of the commodities they buy and the wages they must pay. While the average wholesale prices of all commodities today are about 47 percent above prewar, copper is 21 percent below prewar; silver, 8 percent below; iron ore, 14 percent above; zinc, 12 percent above; aluminum, 7 percent above; crude oil, 18 percent above; bituminous coal, 42 percent above; and lead, 54 percent above. It is only by the most rigid economies and the introduction of every known labor-saving device and technical improvement that these industries have been able to keep going. That minerals are turned out at these prices in the face of wages over 100 percent higher than prewar is itself a great tribute to the capacity of the engineers and executives in these industries.

This industry, therefore, can not be accused of either neglecting the responsibility that rests on all industry for fundamental technical progress—cheap-ening production costs and enlargement of consumption of its commodities-but it can not be accused certainly of profi-

teering on the public.

I presume that a very considerable proportion, if we make due allowance depletion and the various essential and necessary factors, of our minerals are being produced at this moment at no profit whatever. And this brings up question of larger stability in the industry that is not, and can not and should not, be a function of law, a function of government or interference. There does lie in this field, however, the opportunity for cooperation between the Government and industry, and the De-partment of Commerce has been developed as, and I hope is, the cooperative agency in the Government.

It is the desire of the Department of Commerce to join with industry in every proper measure that will make for greater stability in industry. That type of measures, no doubt, will be before you in your discussions, and if there is anything of that nature in which we can be of assistance to you by way of coopera-tion, not by way of legislation, we wish to place our services at your disposal.

LEGISLATING FOR NATURAL RESOURCES

(Continued from page 17)

Workers come and go in the State of West Virginia. Now the interesting thing about that is that it was not the operators who drove the United Mine Workers out of the State of West Mine Workers out of the State of West Virginia. It was the workers themselves who realized that the United Mine Workers leadership not only violated the laws of man and reason to hold their leadership, but that by their violation of the economic laws they destroyed the possibility for labor which lay in the natural resources of that state.

Now, that shows a very great step forward in the thinking powers of the workingman in this country. I have workingman in this country. I have faith in it. I believe in it. I believe in it perhaps because I have had experience it. You know most of us are very inclined only to believe those things in which we have had experience. The ex-

perience taught us.

At present we are at a point in some kind of an industrial cycle, which per-haps Mr. Babson could outline in detail, which I do not pretend to be able to, but we are at a point where various of our major, so-called basic mineral industries are not as prosperous as they were. We, therefore, see certain groups talking of going to Congress to get help. We see the oil people do it. We in the We see the oil people do it. We in the coal industry have always had fellows who came into the back door of the offices here in Washington to say, "Well, of course, I appeared before you against that legislation, but on the whole I am not sure but what it might help." That one of the difficult things to contend th, but that is all it is. We have got with, but that is all it is. We have got to put up with it, just as we have to put thing to do is to remember this-that times have probably been far worse in the past. Our fathers and grandfathers have survived them. We have the advantages of education, of mechanical, industrial and scientific developments to help us to solve the problems that are before us, so we should refuse this offer of legislative assistance, not put our necks in the noose. Keep the shackles off our wrists and hold our bureaucratic friends to the present state of develop-ment of their bureaus. I do not hope to be able to turn them out, because a Government job once created is very much like real property—there is no destroying it. Somebody is going to occupy that job. But let us get our bureaucratic friends to understand that this problem is beyond them, this ecoor the can keep the record of the score.

That we have got to struggle with it, and that they can keep the time for us as the game goes on. They can keep the record of the score. They can tell us what happened the last year or the year before and 10 years ago. But that we are the fellows who are down on the field and playing the game, and we are going to play it.

I have only briefly touched on this legislative problem, but I have tried in touching on it to bring out some of the things which we do not always think about. And I stand just as I have always stood since I have been in business-against legislation for agricul-tural assistance, for mineral assistance, for water-power limitation, and perhaps we would have just as many fish and just as much game if it had not been for our assistance in the legislature.

N RESPONSE to the request of The American Mining Congress, I shall give a brief outline of the legislation which should be passed during the approaching session of Congress relating to the mining industry. In complying with this request, it will be necessary that I also state the reasons and needs for such legislation. for such legislation.

An awakening and advancement are in store for our economic and industrial life. The great mining industry is about to find itself and make its voice heard in demanding from our Government that proper recognition which has been unwisely denied it.

Inasmuch as mining is in every respect as important as agriculture, it will be interesting and instructive to compare the mining and agricultural industries by showing their respective contributions to the economic wealth of the Nation and the encouragement and assistance

each has received from the agencies of our Government.

We commend the necessary annual governmental appropriations of \$128,000,000, which have been of such material aid to the agricultural industry, which produces annually values to an amount of \$12,000,000,000; but we demand from our Government an increase of at least a half million dollars in its annual appropriation of only \$4,000,-000 for the mining industry, which industry produces annually values amounting to \$6,000,000,000 — or half that of the agricultural industry— and which furnishes over half of the freight carried by our transportation system.

This comparatively small increase will enable the Bureau of Mines and the Geological Survey to carry on certain important technical and economic investigational work, which will result in an added conservation of our national resources, an expansion of our industries, the strengthening of our national fense, and an increase in our national

prosperity and welfare.

Outside of the Government service a vast amount of attention has during recent years been given to research, and steadily increasing amounts of time and money are being devoted to this most important means of extending and amplifying our knowledge. Our Government should not be backward in doing its part in this field. We all know that practically every one of the marvelous recent discoveries and inventions which have revolutionized our civilization has been based upon the results of persistent, intensive research. The more we learn, the more complex our problems become; and the more complex our problems become, the greater the amount of ex-



Hon. Tasker L. Oddie

WHAT IS ON the LEGISLATIVE CALENDAR for MINING*

By HON. TASKER L. ODDIE †

Parsimonious Appropriations Allowed Bureau Of Mines And Geological Survey Curtail Their Efficiency—A Brief Outline Of Legislation Which Should Be Passed At Present Session On Behalf Of Mining—Half Million Increase To Be Demanded To Expand Facilities Of Essential Mining Research

> haustive, painstaking research required. It is therefore most essential that ample appropriations by our Government shall be forthcoming to adequately and promptly expand our facilities for re-search to meet the growing demands of our mining engineers in developing to the maximum the magnificent possibilities of the mining industry, in order that it may contribute to our Nation its full share of economic values.

A few of the principal reasons for increased economic and technical investigations in the Bureau of Mines and the Geological Survey are: The 87 percent decline in the production of quicksilver from former years; the serious decline the production of gold and silver, in which our monetary and industrial sys-tems are involved; the lack of information necessary to make available many vast iron ore deposits in our country which can not be worked today; the necessity for improvement in metallurgical and reduction practices in order that greater savings in recovery of the various metals can be effected, and that important and known deposits of certain metals and minerals can be made available for profitable production; the necessity for the discovery of substantial new deposits of tin, platinum, potash, nickel, chromium, antimony, nitrates, and other highly essential metals and minerals; the discovery of methods of substitution; and for the conservation of available

supplies.
In the mining industry of the United States 2,500 men are killed and 200,000 injured each year; and in the last 20 years 50,000 men have been killed in and around the coal mines of the country, the fatality rate being twice that in the European coal mining industry. One of the chief causes of death in the coal mining industry is from falls of roof and coal in the mines, which accounts for 1,200 deaths per year. During two months of this year the Bureau of Mines, in cooperation with the State of West Virginia, carried on an intensive campaign against falls of roof and coal accidents, which resulted in a saving of 35 lives (or 50 percent), and also in an increased production of 1,500,000 tons of coal, as com-

pared with the same two-month period during the previous year. The Bureau of Mines was organized in 1910 for the purpose of improving conditions in the mining industry and reducing the number of deaths and injuries caused by accidents in mines. If it could secure adequate appropriations, an intensive campaign could carried on in the coal districts of the whole country against accidents from falls of roof and coal alone, which should result in the saving of over 500 lives a year, if the same ratio could be maintained as in the case of the two months' campaign in West Virginia. If similar intensive campaigns could be carried on against accidents from other causes in

the coal, metal, and other mines of the United States, it is safe to predict, from available statistics, that there would be a saving of 1,500 lives

a year.

It is easy to estimate the economic gain to our country from a continuation and an enlargement of this great work. and an enlargement of this great work. Aside from the compelling humanitarian reasons, many millions of dollars would be saved to industry—and all by an increase of a comparatively few thousand dollars a year in the appropriations for the Bureau of Mines for this purpose.

The Bureau of Mines is the governmental agency representing our immense mining industry, which produces about

mental agency representing our immense mining industry, which produces about six billion dollars annually, and upon which its eleven million depend, includ-ing the families of its workers. The Bureau of Mines receives in appropriations only a million and three-quarters dollars annually to forward the interests of this vast industry. Less than three-quarters of a million dollars of this inadequate appropriation is available anadequate appropriation is available annually for the safety work of the Bureau of Mines, of which only a quarter of a million of dollars is available for field safety work. The bureau has done fine service with the limited funds at its disposal. It has 21 foreman miners and 13 first-aid miners attached to 11 and 13 first-aid miners attached to 11

^{*}Address delivered before 30th annual conven-vention of The American Mining Congress, Washington, D. C., December 1, 1927. † United States Senator from Nevada. Chair-man of the Senate Committee on Mines and Min-ing.

mine safety cars and 10 mine safety stations; and, since 1911, has trained 200,000 miners in first-aid and mine-rescue methods. Forty thousand more miners will be trained this year, involving work in 34 states by this small band of humanitarian instructors. There should be at least one health and safety branch worker in each mineral producing state for the purpose of adequately disseminating safety information; but unfortunately only six are available for this work. I have already referred to a portion of the work of these men in the campaign against falls of roof and coal. Viewed only from a bookkeeping standards the previous of the work of these men in the campaign against falls of roof and coal.

Viewed only from a bookkeeping standpoint, the parsimonious appropriations allowed the Bureau of Mines by the Government have been repaid many times by the discovery of new deposits, the saving of great quantities of mineral products through the improvement of mining and metallurgical practice and in the reduction of waste. Its technologists have developed or aided in developing processes which have resulted in the production of an immense tonnage of mineral wealth, which otherwise would have remained in the ground; but, when viewed from the standpoint of safeguarding the lives of the workers in the mining industry, the inadequacy of the appropriations amounts to a terrible and shameful neglect of a public duty and a national obligation.

There is great need for increased appropriations for technical research regarding helium—that rare gas which is used in lighter-than-air craft, of such vital importance to our national defense. It is imperative that new sources of this material be developed, and that the process of extraction and treatment be improved, in order that the quantity may be increased and the cost further reduced. The research work done by the Bureau of Mines on this gas has already resulted in the reduction of the cost of its production from several dollars to several cents per cubic foot. Numerous new uses for this gas can be found, if the price be sufficiently reduced.

Increased appropriations are also needed by the bureau to enable it to carry on technical research work on the non-metallic minerals, such as building and crushed stone, sand and gravel, slate and gypsum, and with respect to such primary products as cement, lime, and plaster of paris, necessary in the building industry and in road construction. Greater economy and better results are needed in the use of these materials; hence the demands on the bureau for more intensive investigational work regarding them.

The oil industry offers one of the most important fields for technical research and economic investigation. New fields must be discovered, the rapidly diminishing known supply must be conserved, waste and loss must be eliminated, and improved methods of development, extraction, and refining must be found. The valuable and useful work of the Bureau of Mines and the Geological Survey in the past, and the urgent need for increased activities along these lines in the future, demand an increase in the appropriations for this work by these two efficient governmental agencies.

Another important reason for increased appropriations for economic and technical research work for the Bureau of Mines is making available for commercial development the vast deposits of oil shale and lignite in our western country, which contain in solid form far greater

quantities of oil susceptible of extraction than all the oil pools heretofore known, and which will furnish the liquid fuel and other essential products after our oil fields have become exhausted. Some work has been done in this field, but the necessary appropriations for continuing it in an adequate manner have been withheld

Our petroleum supplies must be handled in a businesslike and efficient manner in order that ample production be maintained as long as the supply from oil wells lasts, and in the meantime our vast oil shale and lignite deposits must be developed and processes for their reduction perfected, in order that the country may not lack its necessary supply of oil and gasoline in a possible interim that might exist between the time of the exhaustion of the present supply from oil wells and the bringing in of the new supply from the oil shale and lignite deposits.

Predictions of the exhaustion of our oil supply from oil wells in the near future are unsafe, because the advanced geological and technical knowledge and methods of discovery of oil deposits are constantly making possible the discovery of new fields. As our demand has increased, the supply has increased. No one will be able to say for a long time to come that all the oil fields have been discovered. Furthermore, it must be remembered that an average of only 20 percent of the oil is at present extracted from the deposits, and that a portion of the 80 percent left in the sands underground under present methods will be extracted in the future by new methods, which undoubtedly will be discovered. Hand in hand with these statements

Hand in hand with these statements must go the strong admonition against wasteful methods in the industry whereby great quantities of gas from oil wells is lost, which, in addition to large economic loss, results in leaving a large proportion of the oil in the sands unrecovered.

The consuming public must be protected by an adequate supply of oil at all times at reasonable prices. The present needs for our national defense must be provided for and its future needs anticipated. The oil-producing industry, on the other hand, must also be protected and allowed to operate effectively and profitably. The industry consists of both large and small operators, whose methods of operation are necessarily different, though both are essential to our economic and business structure. Federal control of oil production is unconstitutional. The oil industry, while maintaining an adequate supply, must conserve its oil resources, reduce waste, and improve methods of production, refining and marketing.

Our Government is further neglecting its duty to the mineral industry in withholding adequate appropriations from the Bureau of Mines for the prompt preparation and publication of current mining production statistics, which are of the greatest importance to the mining and other great industries of our country.

ration and publication of current mining production statistics, which are of the greatest importance to the mining and other great industries of our country. It is also neglecting its duty to the mining industry in so reducing the appropriations for the Geological Survey that the great work the Survey has done for many years in making and publishing detailed geological reports on mining and oil districts, topographic surveys and stream measurements has been curtailed to such an extent that these reports can not be completed and published until, in some cases, the current need for them has

long ceased to exist. Instead of serving as up-to-date and useful aids to industry, as Congress intended them to be, they are in many cases nothing but postmortems.

The Bureau of Mines is the clearing house of information on mineral economics; and, in this connection, it should be remembered that there is at all times an urgent demand for reliable economic information regarding minerals from the Bureau, which information is generally accepted as authoritative and impartial because it is sponsored by the Government. Yet only \$300,000 a year are allowed for the Bureau's economic research work—a pitifully inadequate sum, in view of the great need for an enlargement of this vitally necessary work—while the Department of Agriculture is allowed \$5,000,000 for economic research work in the agricultural industry—a sum which is also inadequate for such a fundamentally constructive purpose.

Time prevents the enumeration of more of the important activities of the Bureau of Mines and the Geological Survey which await legislative action by Congress to provide sufficient appropriations to enable them to function as they should. I commend these two Government agencies for their splendid accomplishments with the means at their command. They have been seriously handicapped by an agency of the Government which has denied to the mining industry appropriations sufficient adequately to maintain one of the most important and basic economic structures of our civilization.

nomic structures of our civilization.

This agency is the Bureau of the Budget, which has usurped the powers of Congress to a large degree, and which is utterly lacking in the technical and economic knowledge necessary to determine the needs of these particular bureaus of the Government. On the contrary, it persistently directs its attention solely to reducing appropriations rather than to those broad questions of service and efficiency, which, if properly appreciated and intelligently handled, would result in an increased provision for the public welfare and safety. Another policy of the Bureau of the Budget forbids the heads of departments and bureaus from asking Congress for more than the Budget has allowed.

than the Budget has allowed.

The so-called "War Minerals Relief" legislation, which has twice passed the United States Senate, will be reintroduced at the coming session, and it is predicted that it will pass both Houses of Congress and become law. It is a piece of legislation to remedy the wrongs done many mining men and organizations by the failure of the Government to carry out its obligations and agreements made during the war, in order to secure supplies of minerals necessary in carrying on the war.

The largest number of applications for complaint against unfair methods of competition on file since September 1, 1925, are now before the Federal Trade Commission, numbering 505.

Number of applications received has increased monthly since January 1 when the total was 406. Pending November 1 were 262 inquiries preliminary to applications for complaint. Four formal complaints were dismissed and two disposed of by cease and desist orders in October.

LAWFUL COMBINATIONS in INDUSTRY *

By GILBERT H. MONTAGUE †

Legal Obstacles Few-New Opportunities For Trade Associations—Greater Control Over Business Cycles-The Foreign Cartels

N EVER in the history of the antitrust laws has their interpretation by the Supreme Court and their administration

by the Government been so sympathetic as now to the present and future need;

of American business.

Business men are only just beginning to realize what a variety of new and effective methods for stabilizing business at home and for extending business abroad have become available in consequence of recent decisions and rulings by the Supreme Court, the Department of Justice, and the Federal Trade Commission.

LEGAL OBSTACLES NOW ARE FEW

More and bigger consolidations among producers, manufacturers and distributors, under proper conditions and with adequate legal safeguards, are permitted and indeed invited by the present attitude of the courts and the Govern-

ment.
All that the anti-trust laws as now interpreted by the courts require in respect of consolidations is that enough spect of consolidations is that enough competitors be left outside to insure effective outside competition, and that when consolidating companies that previously have been in competition with one another care must be taken that such consolidations are accomplished by acquiring their assets and not their capital steal steal. tal stock.

By avoiding unlawful acquisitions of capital stock, and by taking care to leave outside enough competitors to in-sure effective outside competition, such consolidations can now be set up in many industries in entire conformity to the law and with the utmost advantage to the public interest.

Falling prices and diminishing profits are always an incentive to consolidation. With the present clarification of the law, more and bigger consolidations may soon be expected in a number of indus-tries that are now the worst sufferers from these conditions.

Less than 20 years ago the Circuit Court of Appeals in New York City, second only to the Supreme Court of the United States in the judical system of the United States, laid down as its interpretation of the anti-trust laws that it would be unlawful for two express-men who happened to be doirg business across state lines to enter into a partnership.

Last spring the Supreme Court of the United States, passing upon the International Harvester Company, said that size, no matter how impressive, and power, no matter how great, unless they be exerted in the direction of evil, could not be a violation of the anti-trust laws.

Between those two decisions, covering a period of less than 20 years, there has occurred a progress and a development in the interpretation of the anti-trust laws which it well behooves the business men of this country at the present



time fully to appreciate. During the last 15 years the Supreme Court of the United States in one case has held that it was entirely lawful for a company making shoe machinery to combine within its control 70 percent of three non-competing groups of the shoe machinery of the country; in another case it has held that it was entirely lawful for the United States Steel Corporation to combine within its control 50 percent of the steel business of the country; and in the case which I have just referred to, of the International Harvester Com-pany, it has held that it was entirely consistent with the anti-trust laws for a single company to combine within its control 64 percent of the harvesting machinery of the country.

We have now reached the time when it may truly be said that never in the history of the anti-trust laws has there been ever such complete sympathy between business, the Government, and the courts, as to the necessity of interpret-ing the anti-trust laws in such fashion as shall be compatible and consistent with the present and future needs of American business.

What has brought this about? It is a long story; but primarily it is the gradual realization on the part of business, Government, the courts, and the public, that there are advantages in consolidation and in combined action

which were not realized 20 years or even 15 years ago.

Business, Government, the courts and the public have at last appreciated the social benefits that flow from mass pro-

duction, reduced manufacturing and distributing costs, higher standards of wages and living, and the increased purchasing power of the entire nation.

Mass production, and the great social and humanitarian benefits which have resulted from mass production, as we have seen them develop during the past 15 years, are accountable, more than any other cause, for this new attitude on the part of the Government, the public the courts.

The miracle of a rising wage scale and a declining price scale and dimin-ishing costs of production and distribuisning costs of production and distribu-tion, which America now presents to the world, has taught this lesson to the Government, the public and the courts. Mass production, the reduced costs of production and distribution which have

followed in its wake, the higher stand-ards of wages, and the correspondingly ards of wages, and the correspondingly higher standards of living which higher wages have brought about, have raised the purchasing power of our people to the unprecedented figure of 89 billions of dollars last year, and have finally put of dollars last year, and have many put this country in the position where its prosperity, fed by this large consumer demand, through this high scale of liv-ing, through these high wages, through these low distribution and manufactur-ing costs, and resting finally on mass production, has made America the marvel of the world.

It is not surprising, therefore, that in 15 years the courts should have en-tirely reconstructed their notions as to

consolidations.

There is, as some of you know, in the Department of Justice, under the regime of the present Attorney General Sargent, and the Assistant to the Attorney General, Colonel William J. Donovan, a committee which at the present time is functioning on such anti-trust problems and men of industry may submit to them.

From my contact with this committee and with Colonel Donovan, I should like now publicly to pay my trioute to the great accomplishment which the Depart-

ment of Justice and particularly Colonel
Donovan has achieved.

The great honor of having, for the
time being, at least, eliminated the antitrust question from American politics, must be paid to the present administra-tion, and particularly to the Department of Justice, and more particularly

ment of Justice, and more particularly to Colonel Donovan.

I am not going into the details as to the mode in which these matters are handled in the Department of Justice, except to say that in my contact with the department during the past few years I have found them just as receptive to those considerations which I have tive to these considerations which I have discussed here as any men in this audience could possibly be.

MORE AND BETTER CONSOLIDATIONS

There are various patterns which can now be followed with respect of putting together these consolidations.

*Address delivered before 30th annual convention of The American Mining Congress, Washington, D. C., December 2, 1927.

†Attorney at law, New York City.

Without pretending to discuss the details of your own business, I can say that, looking at it from the point of view of an outside lawyer, the opportunity for further consolications in the mining industry is quite beyond the appreciation of most men in the industry that I have talked with, so long as you observe twe primary rules; first, that in any consolidation that you set up you leave sufficient outside competition to insure that there will still be some competition in the industry; and second, that in putting together your combination you avoid acquiring the stock of competing companies, but instead of that simply acquire assets.

If you will steer clear of these two shoals, you can accomplish, so far as the anti-trust laws are concerned, consolidation to an extent that most business men do not now appreciate.

What possibilities this holds in respect of the mining industry—coal mining particularly—must be perfectly clear to

you.

I have read, within the past year, many complaints from men in the coal industry on the limitations which they feel themselves under by virtue of the anti-trust laws, most of which limitations are in my opinion absolutely non-existent, if, simply with the amount of guidance that any qualified lawyer is capable of giving, they would be careful to avoid those two shoals which I spoke of in setting up their consolidations.

of, in setting up their consolidations.

Most of the difficulties with respect of consolidations—particularly in the oil industry and the mining industry—have not been legal difficulties—the Supreme Court has cleared most of those up for us—but have been the natural difficulties of arriving at the prices at which the properties can be brought into the consolidations.

Speaking by and large, the time has gone by when the anti-trust laws can be blamed if business men do not at the present time consolidate.

present time consolidate.

This is soon going to be appreciated, and there is going to be, in many industries, and particularly in your own, a much stronger movement toward consolidation than you now see.

Falling prices and diminishing profits are always an incentive to consolidation. When it is more generally realized to how great an extent the anti-trust laws have ceased to be an impediment in respect of consolidations, both in production and in distribution, and when falling prices and diminishing profits have made it easier trading to arrive at the prices at which the properties shall be brought into the consolidations, there will be more consolidations.

Well-selected, well-managed and well-financed consolidations of producers, manufacturers and distributors may achieve substantial economies in production and distribution in many industries, and what is even more important may bestow upon the community the even greater humanitarian values resulting from these economies.

Such consolidations, so long as they remain true to sound business and legal principles, can today rely upon the hearty good-will of the courts, the Government and the public.

I have purposely refrained, because of my contact with some units in your industry, from here discussing any specific consolidations in the mining industry, but before passing to another subject, I would like again, with all the emphasis of which I am capable, to urge you gentlemen in the mining industry to wake up to the fact that the anti-trust laws are now being construed on the 1927 model of thought, and not the 1907 model of thought.

It is your duty, in my humble opinion, before you take as final some warning that this or that may not be done under the anti-trust laws to have the matter scrutinized from the point of view of what is the present attitude of the Department of Justice, the Federal Trade Commission, and the courts themselves.

Anyone who looks at it from the present point of view will find, I prophesy, in nine cases out of ten, that many of the difficulties you thought existed do not exist.

not exist.

While there are enough other difficulties, in setting up a consolidation, agreeing on the prices at which the properties shall be taken in, and agreeing on the personnel and policy of the management of consolidated company, the legal difficulties have, most fortunately, fallen into second place.

NEW OPPORTUNITIES FOR TRADE ASSO-CIATIONS

Now, there is another line of change which has taken place in the anti-trust laws during the past 20 years, and that is as to what can be done in respect of trade associations.

Up until six years ago it was doubtful how far any trade association could go in compiling and disseminating trade statistics.

As late as 1921 and 1922 there was the greatest peril, under the Supreme Court decision up to that time, as to what could safely be done.

what could safely be done.

Then ensued, on the part of Secretary Hoover and some other gentlemen whom I see here—I am referring to the National Association of Manufacturers—what I regard as one of the most valuable educational campaigns ever carried on in this country—all the more valuable because it was done so persistently in season and out of season.

season and out of season.

Secretary Hoover called attention to the extraordinary situation in which we were placed by these Supreme Court decisions and this attitude of the Department of Justice which, if carried to their logical extent, seemed to prevent trade associations from disseminating essential information and to require every business man to do business blindfolded.

That was the period, you may recall, when it was considered doubtful whether a trade association could collect from its members and then disseminate among its members statistics as to production, stocks on hand, sales and other trade information necessary to enable each producer and distributor to regulate his business with full knowledge of the condition of the market.

Happily, all this has been cleared up, largely, I think, because of the fact that our courts, alive to the new social values uncovered by this campaign of education, finally saw that knowledge was not a crime, and finally realized what, up until that time, nobody except Secretary Hoover had ever made clear, and that is that over-production, which formerly the courts had regarded as a fortunate circumstance which gave the consumer a chance to get products at a less price, was really, in the long run, a socially diseased condition.

No one who has ever read that report of the Committee on Unemployment, which Secretary Hoover and President Harding created in the fall of 1921, can come away without realizing that absence of knowledge of what the conditions of business are, with the result that manufacturers and producers keep on blindly manufacturing and producing without knowledge of the state of the market, is a tremendously ruinous thing to the entire country.

entire country.

Knowledge is a virtue, and not a crime, was what the Supreme Court in substance said in two epoch-making decisions in 1925.

If a trade association chooses to make itself the vehicle by which such statistics are gathered and disseminated, the Supreme Court continued, it is to be praised and not prosecuted, providing always it refrains from making any agreements as to what its prices shall be.

The Supreme Court has finally learned this lesson:

Knowledge, and the action which intelligent men take in the light of knowledge, will, in the long run, tend to produce such an evenness with respect of conditions of prosperity that everybody will profit by it.

conditions of prosperity that everybody will profit by it.

This is much to be preferred over an alternate condition of feast and famine, of high peaks and low valleys, which, as recently as four or five years ago, the courts seemed to regard as inevitable as the weather, and merely as an occasion by which the consumer might be able to get something at a lower price, and, therefore, the community might benefit by it.

by it.

We have only just begun to sense the blessings to which these changes may reach in the future.

The statistical control that industry is now exercising over the business cycle, which was finally held lawful in these Supreme Court decisions, is today still unperfected and scarcely two years old. In the two years that elapsed since

In the two years that elapsed since 1925 we have accomplished another miracle in economic history, by continuing prosperity at a higher point than it has ever attained before, either as to the amount of prosperity, or its duration.

GREATER CONTROL OVER BUSINESS CYCLE

More and stronger trade associations, organized under proper conditions and with adequate legal safeguards, are foreshadowed by recent decisions and rulings of the Supreme Court, the Department of Justice and the Federal Trade Commission.

Over-production, business depression and unemployment, it is now realized, are comparable only to disease in the devastating and far-reaching injuries that they inflict upon the morale and well-being of the entire nation.

Whatever will facilitate a closer adaptation of production and distribution to the requirements of demand will serve to bring under human control one of the most baleful causes of human unhappiness.

Trade associations are better fitted for this work than any other human agency. They have the facilities, and the law now gives them the right, so long as they avoid all unlawful price agreements, to collect and disseminate accurate statistics regarding production, stocks on hand, sales, and all other trade information necessary to enable each producer and distributor to regulate his business with full knowledge of the condition of the market.

Trade associations, if they perform this work in the manner now approved by the law, can confer upon mankind a benefaction approximating the control of disease by modern hygiene.

The opportunities which this may ready been shown by the action recently taken by the copper industry in setting up the Copper Institute for the purpose of collecting and disseminating more detailed statistics than those previously collected and disseminated by the Bureau of Metal Statistics.

Knowledge, more knowledge, and still more knowledge, is what the public, the courts, the government, as well as business, now demand.

If the accomplishments of the next 10 years approximate the accomplishments of the last two years since this new freedom has been won and exercised by business, we are on the eve of what can almost be described as a new millen-

Time fails me to mention any except

the high points.

I should like to describe the new at-titude toward business evinced by the Federal Trade Commission, whose emphasis used to be chiefly on prosecutions, but which now, under a wiser régime, is devoting itself more and more to becoming the vehicle by which various industries through their trade associations or otherwise may discuss the evils which they would like, if possible, to eliminate.

Business men now utilize the commission as a means by which trade conferences can be brought together for a full discussion of the evils in their industries, to the end that they may by mutual agreement formulate plans and practices which will eliminate well-recognized evils in those industries.

As an illustration of self-government in business, this is something which the Chamber of Commerce of the United States very properly has most enthusiastically commended.

NEW FREEDOM FOR FOREIGN TRADE

One other point before I sit down, and that is the new attitude with respect of foreign trade. A great deal of foolishness has in the past been talked about foreign trade. A great deal of aspira-tion has not been realized, and those of us who have had any contact with the situation have learned to speak with considerable diffidence. There are, however, some things in respect of foreign trade which it is worth while for business at the present time to know, even though perhaps the time for utilizing this new knowledge may be somewhat in the future.

In 1918 the Webb Export Trade Act was passed. Unfortunately it seemed to be the view, on the part of those inter-preting and administering the Webb Act during the first five or six years of its existence, that there must be an absolutely iron-clad form of organization before any of the benefits of the Webb Act could be utilized, with the result that, except for a few associations, of which the Copper Export Association was the chief example, relatively few industries felt that they could afford absolutable to felt that they could afford absolutely to throw into the discard each unit with its own export department, and pool their future in one single selling organiza-tion, which should be intrusted with the sales for all those units.

This interpretation was quite contrary to the true meaning of the law, and in due time better counsels prevailed.

Again, credit must be given to Secre-

Hoover.

At the request of the Silver Producers' Committee, Secretary Hoover, in 1923 and 1924, with the aid of this commit-

tee, formulated some questions on which rulings were obtained from the Federal Trade Commission, and the rulings were published at the end of July, 1924.

Here, for the first time, there was a clear statement by the government that it was not necessary in order to get the benefits of the Webb Act to adopt any such purely artificial form of organiza-tion, but that it was quite sufficient, so long as the domestic trade of the counwas not in any way restrained, if any group of American producers or manufacturers or their various export departments chose to form a Webb Act Association for the simple purpose of agreeing among themselves on the prices at which their respective export depart-ments should individually and separately sell in foreign trade.

For various reasons, quite apart from the law, this has not, to the present time, been utilized to the extent that some time it may.

What I wish now to emphasize is that this new liberty, with the complete ap-proval of every department of the gov-ernment, has at last been conferred upon the American export trade.

On that same occasion still another ruling was made, which some time may be of the greatest value to us.

Any group having gotten together under the Webb Law may now agree with foreign competitors as to the prices at which the American group and its foreign competitors shall sell in a foreign market.

FOREIGN CARTELS ARE NOT A MENACE

Stouter, stronger and more flexible methods for organizing against foreign competition, and for cooperating with foreign competition, according as American interests may require, are now permitted and indeed invited by the latest interpretations of the anti-trust laws.

Increased foreign competition, erated in large degree by the aid of our own foreign investments, is now impinging not only upon American export trade but also in some degree upon the American home market.

Much unnecessary alarm over this situation has been expressed by some newspapers and a few officials. This alarm is not shared, however, save in exceptional industries, by the business exceptional industries, by the business men and officials who are most familiar with actual conditions here and in Europe.

If in the future conditions should change and there should ever arise any sound cause for alarm, there are many means, hitherto unused and undreamed of, that are wholly within the permission and invitation of these recent interpretations of the anti-trust laws, which may effectively be utilized in order to preserve American business in the vol-ume necessary to maintain the mass production, the low manufacturing and distributing costs, the high standard of wages and living, and the present volume of purchasing power, on which American prosperity is now absolutely dependent.

We are hearing a great deal about foreign cartels. If the time ever comes for us to sit around the same table and negotiate with them, it is quite conceivable, for the purpose of holding some of our foreign markets, that we avail ourselves of these recent rulings under the Webb Act. The copper indus-try has already done so. This may extry has already done so. This may ex-tend to other branches of your industry. The opportunity of negotiating, of put-ting yourself on an equality with the

foreign producers, of agreeing with them as regards the prices which shall be charged by them and by you in foreign trade, may some time save a market to America, which otherwise might not be saved. The export trade which this country has, small though it be relatively to our domestic trade, is a back log which may some day be extremely important to us.

Other new opportunities and new methods are also available, in conse-quence of this new temper on the part of the government and the courts. convinced, from the questions that are daily being put to me, that business men have not yet caught up with the pos-sibilities of what may be done in respect to stabilizing business at home, and increasing business abroad, by reason of recent interpretations of the anti-trust laws by the courts, the Department of Justice, and the Federal Trade Commis-

The time has gone by when the government of this country, or the courts of this country, can be charged with being economic illiterates.

is an appreciation on the part There both of those interpreting the laws, and those administering the government, that the present well being of America and prosperity for which we are admired throughout the world, depends on the continuation of the sequence of events which has obtained during the past three or four years, namely, the consolidation of industry, the exchange of informa-tion, and more latitude in respect of what we can do in export trade; that without this new freedom we can not without this new freedom we can not continue our present scale of wages in this country; but that if we have that freedom, we can repeat, year after year, to the admiration of the world, the present miracle of high wages, low prices, diminishing costs, and increasing prosperity throughout the rank and file of our entire American life.

EXPLORATIONS IN ALASKA

The Interior Department announces the completion of the field work of another exploratory expedition in Alaska by the Geological Survey and the bringing back of maps and information regarding a tract of more than 2,000 square miles in the Alaska Range and adjacent country on the west side of Cook Inlet, in the environs of Mount Spurr, that has hitherto been shown as a blank area on all authoritative maps. This exploration is one of the series that the Geological Survey has been making throughout the last 30 years. The party consisted of S. R. Capps, geologist in charge; R. H. Sargent, topographic engineer, and four camp men. Transportation in the field of the necessary provisions, supplies, and equipment for 100 days was furnished by a pack train of 15 horses. From the time when the party landed at Trading Bay, on the west side of Cook Inlet, about the middle of June, until it returned to that place at the end of the field season, about the middle of September, the members were entirely out of communication with the rest of the world and saw no human beings other than one another.

WILL MODIFICATION of the SHERMAN LAW SOLVE COAL'S LARGEST PROBLEM?*

By WALTER GORDON MERRITT

THE fact that we are here to discuss this subject; the fact that there has been assigned to the Assistant Attorney General a discussion of a possible modification of the Sherman Anti-trust Law; the fact that there have been organizations from time to time

year serious consideration of the antitrust law, all indicate a serious restlessness in connection with this law, and the fundamental policy which it imposes

upon us.

We are, after all, dealing with the question as to what shall be the public policy of this country as to the use of economic power, on the part of economic combinations or aggregations. We recognize that collective action exercises a power for good or ill far beyond that which can be exercised by individuals, and that, therefore, it should carry with it certain responsibility and restraint commensurate with its great power. Let us also recognize that these antitrust laws have a greater dignity and standing in connection with our industrial theories than do most laws. It might not be amiss to call them institutions, as they, to a large extent, determine the industrial institutions of this country. Colonel Donovan on various occasions has referred to them as an underlying philosophy of human relationships, and that, I am sure, is not an exaggerated statement of their significance. These laws do determine our industrial liberties, our industrial relationships, and they have some effect, whether to promote or retard, our industrial progress and growth. They have been in existence since the development of modern industry in this country along the more modern lines. So they do represent, gentlemen, what may be fairly called an industrial institution.

The question often arises as to what is wrong with them; what causes this restlessness which brings us here especially to discuss this subject? After listening to Mr. Montague we rather gather the idea that there is nothing radically wrong with them, and that the liberalization of interpretation of these laws by our courts make them adaptable to modern business.

If the labor unions were here they would not agree with that. Of all sections or units of society, they are the most clear and definite as to their criticism of those laws. And their criticism is based upon fuller information and fuller understanding than is the criticism of some of the business men who may have stubbed their toes upon some of those laws.

"No one e'er felt the halter draw With good opinion of the law."

Anti-Trust Laws Determine Our Industrial Liberties, Industrial Relationships, And Affect Our Industrial Progress—Modification For Coal Industry Must Consider Fundamentals Such As Protection Of Industrial Liberty, And How Great Sacrifice The Industry Is Willing To Endure To Accomplish The Desired End



Walter Gordon Merritt

And so it is very easy, if the law gets in your way or if the law challenges your conduct, that you should reach the conclusion that such a law is wrong, and that you should fail to take into account other aspects and other consequences of that law with which you are unfamiliar.

I join with Mr. Montague in stating that the Department of Justice, as at present administered, is conducting its work under the antitrust laws with greater intelligence, with more impartial fearlessness, than has any other Department of Justice in previous administrations.

But, notwithstanding all that is said, we do have this restlessness under our antitrust laws, we do have speakers representative of capital journeying around the country speaking of the antitrust laws as a menace to industry, referring to the institutions of Europe which do not have such strong antitrust laws, and saying that we should adapt ourselves to the European institutions.

There is no harmony in the views. Some say that the anti-trust laws are not sufficiently retarding the development of large aggregations; others say that they are too restrictive. And labor says that they are interfering with the freedom of labor unions.

The anti-trust laws imply noninterference with business by government. That may

seem to you a contradiction in terms, but it is not so in fact. In effect, they say that neither private citizens nor government shall interfere with economic laws in private business. But if you ask Congress to change these laws so that private citizens can interfere with economic laws by artificial combinations which destroy competition, the Government is going to say, "We are going to have a hand in the conduct of business." Today government stands on the sidelines and says that these economic laws of competition, of supply and demand, shall be allowed to work out with full freedom. They say, "We will not step into the arena and stop them"; and they stretch out the strong hand of government so you shall not step into the arena and stop them. In other words, competi-tion becomes the law and order of industry which it is the duty of government to maintain; and the freedom of competition is the thing which leads to our philosophy of government noninterfer-ence. We also establish the Trade Comence. We also establish the I rade Com-mission, which says "There shall be no unfair competition." In other words, while government stands on the side-lines and watches the economic battle ines and watches the economic battle proceed, it is at least going to see that in the economic battle no one shall hit below the belt. So the anti-trust laws are, in effect, noninterference laws, simply holding people back from interfering with economic development, with the understanding that free and fair competition shall prevail.

Competition becomes the regulator of prices and of business. Remove competition and you remove that regulation; remove that regulation and you are going to have another kind of governmental regulation. No one can think as they diagnose the public psychology, and particularly our political psychology, that human selfishness, as it expresses itself in business, will be allowed free scope in business without any regulation. Since when did human power ever stop at the portals of justice? What group of human beings reaches up to the peg and takes down and puts on its own bridle? These very antitrust laws which seem to me to make noninterference with business possible speak an economic and political creed that if the public protects liberty, liberty will protect the public; protect competition, and competition will regulate in the public interest. Remove that protection and in present-day tendencies you may substitute a kind of public protection which is less acceptable.

^{*} Address delivered before Thirtieth Annual Convention of The American Mining Congress, Washington, D. C., December 2, 1927. † Counsel, Anthracite Operators' Conference.

The American conception of industrial liberty is different from that of any other country. We have long passed beyond the stage where we believe liberty is merely a question of the form of government, whether it be a monarchy, an oligarchy, or a democracy, or mere guaranty against violence. In our workaday life it is equally important that we be protected in our liberty to serve the public by pursuing an economic career.

If you repeal the antitrust laws or modify your conception that they are a protection of liberty, you are fundamentally altering the entire nature of your industrial institutions. Take, for instance, the great mass of your labor litigations, from the Danbury Hatters' case in 1902, where a comparatively small manufacturer in Danbury, Conn., was protected in his rights and liberties from the attack of the American Federation of Labor in its boycott of his customers from the Atlantic to the Pacific; then follow down to the case of the Bedford Stone Company, last April, where it was held that labor could not refuse to work with products on a building simply because those products came from an open shop. In the Hatters' Case it was stated that the purpose was to protect the "liberty of the trader," and subsequent cases have "carried on." Within that period of a quarter of a century you will find industrial liberty protected in many cases, and that it is dependent for its protection, in a very large degree, upon our antitrust laws.

I have taken the labor cases for illustration, but the same principle applies to a combination of business men to put a competitor out of business. So I have come to the phase which I used in an address, over a year and a half ago, when I called these statutes liberty laws. Whatever you may feel as to the restrictions of the antitrust laws, they are, by and large, a protection of liberty, rather than a restriction of liberty, rather than a restriction of liberty. They announce the principle that the channels of trade and commerce shall be kept free and open, so that the products of any producer, employer or employe, may flow freely through interstate channels to the markets of the nation, where every citizen may exercise his right of commercial suffrage in determining which product he cares to purchase; may exercise what I sometimes like to call his sovereign right of choice. These laws keep these channels of trade free and open so that if anybody seeks to become the aggressor and interfere with the liberties of another, his conduct in that regard is checked on the general theory that there is a public benefit and a public protection, in addition to being a protection to the individual producer, in having these various products flowing to the markets of the nation where each may choose as he sees fit.

We started about 1887, in passing the interstate commerce act, the primary purpose of which was to prevent rebates and discrimination on the part of the railroads, so that the producers might each receive fair and impartial service from the railroads. That was one step in the direction of liberty. In 1890 we passed the antitrust law which, as I have already stated to you, as interpreted by the Supreme Court, is a protection of the liberty of the trader. We passed a federal reserve act, and one of its purposes is to see that the opportunities for credit, and banking facilities, are freely extended. And finally, as the apex of this developing volume of law, all de-

signed for the protection of liberty in industry, we passed the Federal Trade Commission act, which declared unlawful all unfair methods of competition.

Starting with the origin of this country, with its Declaration of Independence, which was dedicated primarily to the principle of individualism, and running down through all these stages of which I speak, we have but developed the consistent policy that the best benefits in a country are to be maintained by this freedom which insures liberty to every man, which gives its protection to every man, and which rewards him, as nearly as can be done, in accordance with his individual worth.

That does not mean that there is any legal objection to an organization of employers, or any legal objection to a combination of employes, but it does mean that there is also the right to remain unorganized, whether it be employer or employe. It does not mean that voluntary associations are not lawful and proper, but it does condemn involuntary associations which are built up, not by service to the public but by a system of aggression which seeks to put out of business any person which does not care to join the association.

Great Britain, in 1902, thought that it could completely do away with all restrictions in competition, and so a law was passed putting such combinations beyond the reach of civil process. What was the result? Twenty-five years later, after the general strike in that country, they found that combinations if uncurbed may become a public menace, and they have sought to pass fair regulations on the economic power of groups which attempt to coerce government.

the economic power or groups which attempt to coerce government.

In discussing this problem from the
point of view of the coal industry, it is
not possible to commence merely with a
discussion of the needs and problems of
a particular industry. At the threshold
of any such discussion lie all these fundamental principles of which I have spoken;
all those fundamental principles and
questions of which Colonel Donovan
speaks as human relationships, the fundamental questions of our industrial institutions.

Before you can intelligently debate the application of the question of amendments to a particular industry you must face the question, as a matter of social policy, as to what price you, as members of a particular industry, are willing to pay to accomplish some definite thing which you think you should be allowed to accomplish. The question is whether you can accomplish what you want to accomplish without paying the price of the complete surrender of this concept of industrial liberty. In the anthracite industry, as a specific example, I presume it may well be said that the protection of the public from extortionate prices in that industry—the competition from other fuels and, therefore, as a matter of economics, if the operators were given the unrestricted right to combine within their own ranks, so that there would be no competition within its own ranks, the public would be amply protected by other fuels, because the prices could not be increased because of this outside competition by other fuels. Moreover, in the absence of the antitrust law the anthracite producers could get their coal to the public markets in a more efficient way, saving a dollar or two in distribution. That is a special case, but, of course, no one supposes that Congress is going to

pass any law giving an anthracite operator such an opportunity. Even if that industry had that special privilege it would have to be at the sacrifice of individual liberty, to make a thorough job of it. Because of the necessity of controlling a dealer who would not come into the combination, or the producer who would not come voluntarily into this combination, they would have to be demolished by the Juggernaut car.

In the bituminous industry, I understand the tendency is for mines to go out of existence at the time of a buyer's market, and come into existence at the time of a seller's market. To whom are you willing to give the power to stop the excess or uneconomic operations? Frivate persons? Some government tribunal? If so, you are people of greater courage than I think you are. But if you attempted to put that power in any governmental tribunal, again you have sacrificed what I have called this concept of industrial liberty.

In the oil industry we have still a more embarrassing situation, because we have a natural resource, where the oil is bubbling out and must be taken care of in some way. The result is that it is often thrown upon the markets in a very wasteful way. To stop this there is rationing going on in connection with certain wells, notwithstanding the antitrust laws. If we were governed by a monarchy which could lay out a paper program, it might put the oil industry on a basis which would make production more stable and less wasteful. Perhaps the time will come when there will be made an exception in the law with respect to natural resources, merely for the purpose of conservation. But if that is done, it will be done on the theory that those dealing with natural resources are subject to greater restrictions of their liberty than those who are dealing with other than natural resources.

If there is a serious endeavor to amend the antitrust laws, the situation will be fraught with serious dangers. The danger, in my mind, is that the business man, through misinformation finding there is something that he wants to do which he can not do under these laws, may be inclined to unite with organizations like the American Federation of Labor, to wipe out the antitrust laws, and in the course of years this partnership might gain sufficient headway to completely change these institutions of liberties, and completely demolish these antitrust laws which have been of so great advantage to us in the development of our industry.

When you are considering your own problems, when you are considering an amendment which would be of benefit to you particular industry, ask yourself this question: Can you protect industrial liberty and accomplish your end? If you can not, are you willing to sacrifice this concept of industrial liberty in order to accomplish this end which you want to accomplish in your particular industry? Those are the fundamentals which we must all bear in mind, and they are deeply rooted in the character of our American people, as well as in our institutions. A self-reliant people, who have done a world of experimentation for the good of the country as a whole, have done a world of pioneering in developing a new country, does not wish to abandon entirely its principles of individualism for the principles of coerced collective action on the part of organized groups

In this country there has been reserved to employers (Continued on page 41)

The ZINC INDUSTRY and the SHERMAN LAW*

Bu A. SCOTT THOMPSONT

Zinc Miner In Tri-State District Has No Voice In Setting Price For His Product-Wisdom Of Selecting Government Commission With Power To Approve Conduct Advanced For Consideration-Situation Confronting District Outlined

might follow. It might proceed along any one of various lines. Not being engaged in mining, and to a certain extent unwilling to hazard a guess as to causes of the troubles of the industry, the writer will not attempt to discuss problems of zinc except by incidental reference thereto. Indulgence is asked, however, while an active member of the bar, who has watched the development and growth of the great zinc mining fields of Oklahoma, Kansas and Missouri, known as the "Tri-State District," makes some observations that have occurred to him while serving in a professional way those interested in the welfare of this district. With only a limited knowledge of the smelting or refining end of the zinc industry, such remarks as may be made are necessarily limited to a study of conditions existing among producers of zinc concentrates in this field, where for a number of years over 60 percent of the zinc concentrates mined in the United States have been taken from the ground. It is apparent, however, that problems affecting a district producing so heavily of a given product must be of some consequence to the entire industry.

"THE Zinc Industry and the Sherman Law" as a

subject indicates little that en-

ables one to foresee the na-ture of the discussion that

It is quite apparent to any informed person today that the demand for zinc is not keeping pace with world production, and this results in one certain fact: a narrowing of the margin between cost of production and sale price of the output. Exportation of zinc of the output. Exportation of zinc from the United States in concentrate or metallic form is today a minor factor. or metallic form is today a minor factor. Imports likewise are unimportant factors because of our wise tariffs. Without the present tariff duties many domestic producers would be driven out of the business. The situation today finds the miner of zinc in this country largely limited to a home market for his product. Domestic production is today outrunning home consumption. This is caused in part at least by improved processes for treatment of ores, and in part by the unintelligent practice of mining zinc in quantities in excess of the reasonable demands of the domestic con-

The Tri-State District is peculiar in some respects. Mining operations are carried on by no less than 109 separately owned companies. The nature of the titles held and ore bodies found require operations on small acreage units, resulting today in at least 204 mines being fully improved with necessary concentrating equipment at considerable capital outlay. Most of the mining acreage is being held on term leases requiring continuous work. It is the one district where the output is not contracted over



A. Scott Thompson

a period of time but instead is sold weekly in the open market to representatives of smelters. These representatives, about 15 in number, reside in the district and attempt to secure their requirements on Saturday of each week. Some of the mine operators have been unkind enough to suggest the absence of any open market, and at least it may be said that competition in buying has not been excessively evident in prices

Mr. J. D. Conover, secretary of the Tri-State Zinc and Lead Ore Producers Association, from a careful study of data collected by that organization, has said that the average cost of producing concentrates in this district over the last 44 months has been \$44.30 per ton, while the average market price for zinc con-centrates for the same period has been between \$45 and \$46 per ton. The mar-ket price today for the same product is about \$34.50 per ton.

The smelter buyer on the other hand insists that his mounting costs are rapidly wiping out the margin between price paid for concentrates and price received for his finished product.

The zinc miner in the Tri-State District today has no voice in setting the price on his output. He takes that which s offered or does not market his product. The buyer offers that which he says is justified by the current market quotations for zinc metal.

If the miner and the zinc ore buyer are correctly stating their respective positions, then we have the remarkable tacle of a great industry rapidly exhausting a valuable natural resource without ap-

preciable profit to either branch. With this condition in mind, can we not agree that the zinc industry in its every branch is entitled to receive a price for its product that will at least insure return of capital cost and a reasonable profit on the investment, taking into account the hazards of the business?

Assuming, but not knowing, that the

zinc metal market is free and uncon-trolled, is it not a serious condition in which the industry finds itself?

What has been done that tends toward alleviation of this condition? What other steps might be taken?

First, has there been any attempt by the mine operators to correct the evil of overproduction? In the Tri-State Field there has, for four years, been a real attempt made in the only legally possible requirements. sible way-that is, by education through the activities of an operators' trade asso-All available data concerning ciation. zinc have been distributed regularly among operator members. These statistics have dealt with average costs of production, weekly amount of production and sales, stocks on hand, production of other districts, and other permissible data enabling the receiving member to intelligently visualize the industry as a whole, and thus determine the sound business policy to pursue. The operwhole, and thus determine the sound business policy to pursue. The operators were advised of the limitations placed on business by the Federal Anti-Trust Statutes, also of the limitations placed on the activities of trade associations by the Supreme Court of the United States in American Column & Lumber Co. v. United States, 257 U. S. 377. wherein the court said:

"It has been repeatedly held by this court that the purpose of this statute is to maintain free competition in interstate commerce, and that any concerted action by any combination of men or corporations to cause, or which in fact does cause, direct an undue restraint of competition in such commerce, falls within the condemna-tion of the act and is unlawful,"

377, wherein the court said:

and of similar limitations in United States v. American Linseed Oil Ass'n, 262 U. S. 371. They were made familiar with the rule laid down by the same court in Coronado Coal Company v. United Mine Workers of America, in 268 U. S. 295, holding that an attempt to reduce the production of an article to be entered in interstate commerce with the intent to control the price was violation of the anti-trust statute.

The right of these operators to re-ceive such useful information was not entirely clear, but they were advised that the holdings of the Supreme Court had not condemned such activities. However, a special inspector from the

^{*} Address delivered before Thirtieth Annual Convention of The American Mining Congress, Washington, D. C., December 2, 1927. † Attorney at law, Miami, Oklahoma.

Department of Justice made two extended investigations with a view of de-termining whether the law was being As late as December 19, 1923, the then Attorney General of the United States, in correspondence with the Sec-retary of Commerce, condemned as violation of the law the practice of trade associations distributing such informa-tion directly to the member. With this uncertainty existing, a

great relief came to business when the Supreme Court handed down two clearly supreme Court handed down two clearly expressed opinions in Maple Flooring Manufacturers Ass'n et al. v. United States, 268 U. S. 563, and Cement Manufacturers' Protective Ass'n et al. v. United States, 268 U. S. 590, clarifying the law concerning the activities of such

associations.

In the Maple Flooring case the court

"It is not, we think, open to ques-tion that the dissemination of pertinent information concerning any trade or business tends to stabilize that trade or business and to produce uniformity of price and trade practice. Exchange of price quotations of mar-ket commodities tends to produce uniformity of prices in the markets of the world. Knowledge of the supplies of available merchandise tends to prevent overproduction and to avoid the economic disturbances produced by business crises resulting from overpro-duction. But the natural effect of the acquisition of wider and more scientific knowledge of business conditions, on the minds of the individuals engaged in commerce, and its consequent effect in stabilizing production and price, can hardly be deemed a re-straint of commerce; or, if so, it can not, we think, be said to be an un-reasonable restraint, or in any re-

spect unlawful.

"It is the consensus of opinion of economists and of many of the most important agencies of government that public interest is served by the gathering and dissemination, in the widest possible manner, of information with respect to the production and distribution, cost and prices in actual sales, of market commodities, because the making available of such information tends to stabilize trade and industry, to produce fairer price levels, and to avoid the waste which inevitably attends the unintelligent conduct of economic enterprise. competition means a free and open market among both buyers and sellers for the sale and distribution of com-modities. Competition does not become less free merely because the con-duct of commercial operations be-comes more intelligent through the free distribution of knowledge of all the essential factors entering into the commercial transaction. General knowledge that there is an accumulation of surplus of any market com-modity would undoubtedly tend to diminish production, but the dissemination of that information can not, in itself, be said to be restraint open commerce in any legal sense. The manufacturer is free to produce, but prudence and business foresight based on that knowledge influence free choice in favor of more limited production. Restraint upon free competition begins when improper use is made of that information through any concerted action which operates to restrain the freedom of action of those who buy and sell.

"It was not the purpose or the intent of the Sherman Anti-Trust Law to inhibit the intelligent conduct of business operations, nor do we con-ceive that its purpose was to suppress such influences as might affect the op-erations of interstate commerce commerce through the application to them of the individual intelligence of those en-gaged in commerce, enlightened by ac-curate information as to the essential elements of the economics of a trade or business, however gathered or dis-seminated."

These two decisions recognize, no doubt, the progress of thought among business men, economists and some statesmen. It is a declaration that unintelligent operation of business brings waste and economic disturbance and is harmful to general business; that the establishment of fair price levels and stabilization of trade and industry is wholesome and desirable. The court, however, definitely fixes the limitation when it says:

"Restraint upon free competition begins when improper use is made of that information through any concerted action which operates to re-strain the freedom of action of those who buy and sell."

It seems clear, then, under the de-clared law, that, while maintenance of even and fair price levels and elimina-tion of waste in business result in an economically sound condition, this desirable result must not be attained if concerted action is necessary to its accomplishment.

The court again, in United States v. Trenyon Potteries Company, Advance Opinions No. 9, of date March 15, 1927, and at page 406, answers the contention of some laymen that no violation of the law can result from the establishment by agreement of a "reasonable" price. The court says:

"But it does not follow that agreements to fix or maintain prices reasonable restraints and therefore permitted by statute merely because the prices themselves are reasonable."

In this same opinion the court also makes plain that which is not well understood by many business men and some lawyers, when it declares that it is a violation of law to enter into an agreement to restrain interstate commerce, even though no act or effort is made to carry out such agreement.

The above mentioned and other decisions are clearing up many doubtful questions concerning the operation of the anti-trust statutes. To the student it is anti-trust statutes. To the made plain that, however healthy condition in a given business may be, it may not be attained with the approval of the law if agreement or concert of action between competitors is necessary to secure such happy and wholesome result. The law is based on the theory that competition in trade must be free in order that best results be obtained for the general good.

Is this a sound governmental policy for us to apply to natural resources of our country if it results in the too rapid exhaustion of minerals that can not be restored for the use of posterity? It is said that business will produce only in an intelligent manner, adjusting output

to fit demand; that business will not operate at a loss. That this is not a true statement when applied to labor agriculture or horticulture has been recognized by Congress in extending them exemption from the provisions of the anti-trust laws by the Clayton Act. In fact, our legislators are now giving intensive study to the problem of extending addiorder that they may not only effectively control their output, but by close cooperation and combination may insure a reasonable profit. And in these cases there is not involved the complete ex-haustion of a natural resource, which when gone is lost forever from the marts of trade and the sum total of our national wealth.

If producers of zinc concentrates in other fields are as we find them in the Tri-State field, it is evident that the statement above, that business will produce only in an intelligent manner, does not correctly state the condition zinc producers. In this field sufficient regulation of output has seemed imposaction. This is largely the result of conditions here prevailing, including the short terms of leases, lack of understanding of the will of others, and a knowledge that a curtailment of output of an individual mine would be futile unless a sufficient tonnage production was similarly curtailed. Again, many times a shutdown of operations is more expensive than continuation of production even at a small loss.

Is there anything unsound in the view that consumers of zinc should pay a price to the industry, equitably apportioned, that would insure the return of the cost of mining and a reasonable profit in addition thereto, taking into account the hazardous nature of the under-They are not paying the price taking? today.

Congress has by the Webb-Pomerene Act, known as the Export Trade Act, recognized the necessity for extending protection and strength to export business. Would Congress go a step farther and permit business engaged in the extraction of minerals from the earth to conduct its affairs so as to reasonably assure the return stated, conserve valuable natural resource, and generally place intelligence at the throttle?

Is there a remedy? The writer does not pretend to possess any cure. He believes that but few men would advocate the exemption of the zinc or other mining industry from the provisions of the antitrust laws without some other governmental supervision or regulation. It should be understood, however, that the use here of the words "supervision or regulation" is not intended to convey the thought that government should undertake or be permitted to interfere with the business of mining in any sense, but rather that the zinc industry should be permitted to conduct its business free from prosecution in all matters in which approval by the government is first obtained. Have we progressed far enough to consider the wisdom of selecting a high-class governmental commission with power, upon satisfactory showing of necessity to approve conduct that help cessity, to approve conduct that today would be a clear violation of the anti-trust statutes? This commission could by rules and regulations retain absolute control over the immunity granted, and withdraw the same upon due notice in case of abuse of (Continued on page 43)

WHAT the TAXPAYER EXPECTS in the NEW LAW*

By HENRY B. FERNALD

Fairness Summarizes What Taxpayer Hopes For
—Numerous Examples Of Unfairness In Present
Law Given, Including Inheritance Tax, Corporation Tax—Taxpayer Should Be Allowed To
Submit His Tax Return On Some Basis Reasonably Definite

W HAT the taxpayer primarily expects in the new law I would summarize in one word, "fairness." This he wants, he hopes for, and I think we can say he expects. Certainly we can not consider that we have taxation on a right peace-time basis until we have a law that is essentially fair.

We can excuse a lot of prior imperfections. Our first income tax law of 1913 was an experiment, but its imperfections did not greatly harm the taxpayer because its rates were so low. The acts of 1917 and 1918 were passed at a time of war necessity and war tension, which goes far to excuse their many imperfections. The act of 1921 was an attempt to remedy some imperfections of the war acts, but it was passed in a time of great financial uncertainty and there was great fear lest it might not produce adequate revenue. Our 1924 and our 1926 acts may both be classed as further attempts to remedy definite defects in a war-time tax system. Each of these acts was the result of taking the prior statute, changing tax rates, repealing some taxes, revising old definitions or adding new, amending somewhat the administrative features and otherwise patching it or amending it here and there, all with the hope of making the old system a workable basis for a peace-time law.

This was manifestly not the solution, and the act of 1926 confessed its own imperfections by providing for the Joint Committee of the House and Senate to give such consideration to the revenue system as manifestly could not be given in the midst of any congressional session.

Taxpayers hope and expect much from the work of this committee. Probably they hope for more than it will be humanly possible now to realize. There are some vain hopes that can never be satisfied, but no taxpayer should be told he expects too much when he expects the law to be fair. Perhaps it is too much to say that the taxpayers expect the now pending bill to do all that should be done, but they do expect that ultimately we shall have a law essentially fair in all its provisions.

The average taxpayer does not pretend that he is able to say whether or not the general scheme of rates in the law is fair. He recognizes that there is a problem of raising the money necessary to run the government. He generally recognizes that he is not able to say just how much money is required to do this. He may even see many items of government expenditure which he feels could be reduced or eliminated and yet may not try to claim that the schedule of tax rates is for this reason unfair.

He is warranted in saying that it is unfair for the government to collect more revenue than it really needs to meet its necessary expenses because he believes that taxation is only justified by government necessities.

It is this thought which is back of so much of the opposition to the present in-heritance tax. The law itself shows that heritance tax. The law itself shows that this is not in the main a revenue provision. It openly provides for the ernment to receive only one-fifth of the tax which the law imposes. It offers the other 80 percent to the states as an inducement for them to take from taxpayers money which the federal government admits it does not need. Its purpose is not to raise federal revenues, but to dictate a tax policy to the states, aiming by indirection to do what under its constitutional limitations the federal government could not directly do. Grant that it is altruistic, because the federal government has no revenue to gain thereby, still taxpayers are right in feeling that even an altruistic evasion of constitu-tional limitations has no fair place in a revenue act.

There is an unfairness in the present discrepancy between the corporat on tax rate and the dividend exemption allowed to stockholders. Originally dividend; were exempt to the stockholders to the full amount of the corporation income tax. Even in 1918 the exemption to the stockholder was the full amount of the income tax of the corporation. In 1921

there was only a 2 percent differential between the corporation income tax and the normal tax of the individual. This has been continually increased with each reduction of the individual normal tax until today the differential is

8½ percent. This seems not to be because of any definite policy to increase this differential, but only because the normal tax of the individual has been reduced without bothering to make the changes in phraseology which would have avoided this increasing discrimination against corporate dividends. The wording of the law could readily have been changed to make the dividends exempt up to the stated rate of corporation income tax or. if thought fair, up to a rate which would be 2 percent less than the corporation rate. This applies regardless of whether the corporation rate be 13½ percent or be 10 percent, and whether the individual normal tax be 5 percent or some other rate. But tax rates are after all matters of judgment and so long as they are intended to produce only so much revenue as is required for the government's needs and so long as they are not unduly burdensome on any particular class of taxpayers or any particular kind of transactions I find no great disposition to question their fairness.

It is not as to rates but as to administrative provisions that the taxpayer finds greatest reason to complain of unfairness in the existing law. He has good ground for complaint of unfairness against the system which the law has created.

The law requires (section 223) that the taxpayer shall "make under oath a return stating specifically the items of his gross income and the deductions and credits allowed under this title." He finds that the law pretends to define "gross income" by a statement (section 213) which begins: "The term 'gross income' includes gains, profits, and income . ." and concludes "... or gains or profits and income derived from any source whatever." His lawyer will tell him that not merely is there a continual difference of opinion between the Treasury Department and the courts, but not even the members of the Supreme Court can agree as to what it means beyond the fact that gross income includes income, with a lot of question as to what income is.

He thinks he finds something definite in section 212 (b), which says: "The net income shall be computed upon the basis of the taxpayer's annual accounting period (fiscal year or calendar year, as the case may be) in accordance with the method of accounting regularly employed in keeping the books of such taxpayer." The provision that "if the method employed does not clearly reflect the income, the computation shall be made in accordance with such method as in the opinion of the commissioner does clearly reflect the income," does not disturb him until it is explained to him that this provision does not mean what one would



Henry B. Fernald

Address delivered before Thirtieth Annual Convention of The American Mining Congress, Washington, D. C., December 3, 1927.
 † Loomis, Suffern & Fernald, New York City.

naturally think it meant because, while his books may show his income according to the best accounting practices and in accord with the accepted standards of his trade or business, this is only "commercial net income" as distinguished from "statutory net income," and regardless of how he keeps his books his return must conform to all the detailed provisions of the law.

His confusion of mind is not helped by finding that even if he submits his return strictly in accord with what the regulations and decisions set forth to be the opinion of the commissioner as to the methods which do "clearly reflect the income," this gives the taxpayer nothing definite because the commissioner may at any time, even years hence, change his opinion and make recomputations on some different basis.

He also finds that the department apparently does not like the items and subdivisions of the law since it uses an almost irreconcilably different grouping and statement of items on the various tax return forms.

He begins to feel much like the witness who is asked under oath to answer "yes" or "no" to the famous question of whether he has yet stopped beating his wife. But he has to sign and swear to his return regardless of whether he can understand it or not, and so he swears "that this return, including the accompanying schedules and statements (if any), has been examined by me, and, to the best of my knowledge and belief, is a true and complete return made in good faith for the taxable year as stated, pursuant to the revenue act of 1926 and the regulations issued under the authority thereof." On some returns a man once had to swear "that all deductions entered or claimed herein are allowable under the law." This they no longer attempt to do. No matter how little a man knows of the income tax law, he must swear to his return, even though it is not so much facts as theories that are reflected in the return.

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He thinks it would be better and fairer if his oath could mean something definite. If he could swear that his tax return was in accord with his books and records this would mean something. Even if it be necessary, as it probably is, that the quasi-capital items of gain or loss on property sales, depreciation and depletion should be computed on the special bases provided by law, I-can see no reason why a taxpayer should not be permitted to submit his return and swear to it as being in accord with his books and records except for the specific items mentioned. The return could state whether or not the commissioner had previously passed on these items and whether or not they were returned in accordance with his prior determination. If there were any other items the taxpayer believes should properly be reported on a basis different from that used in his books of record, he could also state these as exceptions.

This would give a tax return and an oath which would mean something. It would also give a much better basis for auditing the return; it would thus be fairer both to the taxpayer and to the government.

Personally I believe the government could well afford to settle income taxes on this basis. In the long run, I believe it would yield as much revenue as the present system. Possibly in the first year or so there might be some attempts

at deferment of income or to advanced deductions, but in the end the income would balance up and certainly in the present state of our governments finances we need not be greatly alarmed at the possibility of some small decrease in tax in the next year or two, which would only have to be made good thereafter.

All I am suggesting is really that section 212 (b) should be taken seriously and made effective. Of course, the government would have the fullest right of examination and amendment for irregularities or fraud.

But this is not my main point. The particular thing I would here urge is not, however, that this need necessarily be made the final basis of tax settlement, even though I think the government could well afford to allow it. What I would here particularly urge as needed fairness to the taxpayer is that he should be allowed to submit his tax return on some basis which is reasonably definite and to do this under an oath which will have some meaning to it. Certainly there would be no material detriment to the government's revenue if the taxpayer were allowed to submit his return as I have indicated above and to pay the tax on this basis, if it were then left to the department on examination of the return to show what, if any, additional tax might be required to accord with the strictest construction of the law.

I am speaking of fairness, and it is only common fairness that the taxpayer should be allowed to submit his return on some definite basis which he can reasonably be expected to understand.

Next look at what happens after the taxpayer has sworn to his return, filed it, and paid the tax it calls for. Naturally he feels that he has filed an "account stated," and that the government has accepted it as such when it took his money. If any real errors therein are shown, he is entirely ready to make them good, but he does feel that definite errors should be shown. He does not feel that it is fair that the commissioner's subordinates should be permitted merely to say "disallowed" or "disapproved" without a positive showing of adequate reason therefor. I know that the commissioner and those in responsible charge in the bureau caution their subordinates to give to taxpayers a statement of the reasons for the changes made, or proposed to be made, but this is done only as a matter of courtesy, when the taxpayer should be entitled to it as a legal right.

It has been urged that it would be putting too great a burden upon the department if it were required to state definite and adequate reasons for its findings, whereas common fairness would be that no tax should ever be assessed unless there is a definite and adequate basis for it. Why should the commissioner be expected to make assessments, which rest wholly upon the findings of his subordinates, if these subordinates can not be trusted to know and state proper reasons for their findings? If the department proposes to add amounts to income or to disallow deductions, it should be able to state the reasons therefor and should be prepared to stand or fall on that basis:

Is not this just what we have found to be the only fair and satisfactory rule for settling an "account stated"? The account is stated; full opportunity is given

to examine all the accounts and records upon which it is based; even the right is given to call and examine witnesses. Why should not the objector to the account be compelled to state the reasons for his objections, and why should we not provide that the objections shall not stand if their reasons are not adequate and proper? Is not the fact that the department is itself to be the judge of its own objections only so much more reason why it should be required fairly and adequately to state them to the taxpayer?

This is not a fault of departmental organization and administration, but it is a fault of the law. The department has done wonders in operating as efficiently and courteously as it has under the administrative system which the law provides.

The real trouble has been that we have tried to take the old internal revenue system, which was well adapted to the collection of taxes based on simple facts, and have tried to apply it to the income tax, which is based more on theories and estimates than on facts. A system built up to deal with the determinations of fact necessary for proper administration of liquor, tobacco and stamp taxes is not the system to deal with income tax theories and estimates. Determine correctly the number and kind of cigars sold, and the correct amount of the tax is merely a mathematical computation. Naturally the commissioner should have ample powers to deal with such cases of misstatement of simple facts. But income is an estimate based on theories. Estimates may be fair and honest, but we do not speak of them as correct.

Nevertheless, the law provides (sec. 271) that "As soon as practicable after

examine it and shall determine the correct amount of the tax." Of course, we can not take seriously and literally the wording that the commissioner shall examine the return. By force of necessity he must delegate this to his subordinates. Yet, strange to say, we have taken literally the companion wording that he shall determine the correct amount of the tax. The strangest thing is that we have thus divorced the examination of the return and the determination of the tax. Thus we have the doctrine that none of those who examine the returns and hear the taxpayer's protests may make any legal determination of his case. Determination rests with of his case. Determination rests with the commissioner, and he makes his de-terminations by signing long schedules of which he probably knows nothing more than that they come to him as evidencing some kind judgment or opinion of trusted subordinates. He does not even know whether those upon whose judgment and opinion he acts have ever even heard the taxpayer's case. The basic principles of equity are violated when he who hears a case is not the one to decide it. Now, I am not suggesting that the right to make assessments should be spread broadcast through the department so that every employe who hears a case may himself make the assessment. This would be neither necessary nor desirable. But I do say that he who hears a case should give his decision thereon. Grant ample opportunity for review or appeal. If his decision seems wrong, have a rehearing and get a new de-cision; but grant the taxpayer a fair chance to be heard and do not have the case decided against him behind closed doors by those before whom he has not been heard.

I am sure no damage would come to government's interest if the law should frankly provide that the commissioner should designate subordinates with power to examine returns; that if they reported any additional taxes as being in their opinion due, the taxpayer should be furnished with a copy of such report, which should state the proposed findings and the reasons therefor, and the tax-payer should be accorded a hearing before such subordinates as the commis-sioner might designate, who, promptly after such hearing, should render their decision upon the matters at issue; that the commissioner should provide for proper review of such decisions, with power to order a rehearing on due notice to the taxpayer, or that the taxpayer should be accorded a rehearing if he desired to appeal; that the decision on such rehearing, or the decision on the first hearing, if no rehearing were held, should be the commissioner's find-.

ing as to the tax properly payable, which tax should be assessed and paid, unless the taxpayer appealed to the Board of Tax Appeals. Such an appeal would be from the decision made, and this decision would constitute a statement of the commissioner's contentions as to error

by the taxpayer.

This would not be so very different from present procedure except

in three particulars.

(a) It would give to the taxpayer a right to have from those who hear his case a statement of their decision upon it. This he is certainly entitled to have or else the hearing becomes a mere travesty. It certainly can not harm the government, which would have ample opportunity for review and rehearing.

(b) It would enable the taxpayer to file an intelligent appeal with the Board of Tax Appeals. I believe such a procedure would have avoided thousands of appeals now pending before the board by taxpayers, who feel they have not heretofore had a decision by those who have heard their cases within the bureau, or who feel they have never had any definite statement which would justify the proposed additional assessment. It would greatly simplify the presentation of cases to the board, because the taxpayer would know, when he filed his appeal, just what was the bureau's position from which he was appealing. He will not need rather blindly to file his appeal to be met merely by a general denial, after which he has the very difficult burden of proof against a largely unstated position of the bureau. As I have already of the bureau. As I have already said, taxes should never be assessed unless a definite reason can be given for imposing them and when they are imposed it is fair to the taxpayer that he should have a state-ment of that reason, and it should be a decision from which he can appeal.

(c) It would mean an abandonment of any attempt to determine "the correct amount of the tax." It would only call for the determination of the tax properly payable. I would go further and say that when the tax thus determined has been assessed and paid it should stand as the final determination of the tax in the absence of fraud, misrepresentation or gross error as to the facts, and on any attempted redetermination for these reasons the burden of proof should be upon the bureau.

We here revert to the question of determining "the correct amount of the There need be no particular exception to this expression if "the correct amount of the tax" were understood to mean simply such amount as, after due examination of each return, was, in the judgment of the taxing authority, the amount of tax properly payable, and stopped there. But the expression seems to have been read literally to mean what is ultimately found to be correct. So there has been built up a theory that if at any time the commissioner finds that new decisions of the courts, new opinions of his legal advisers, or even new thoughts on the matter by his sub-ordinates would indicate that some prior

"Saw A Vision Of Utah-All The Wonder There Would Be"

TAH'S non-ferrous metal production of record to date would be sufficient to lay a pavement of copper, lead and sinc— d—fourteen feet wide and one inch thick from Salt Lake City to Washington, D. C., with a solid silver milepost two feet square and six feet high at the end of every mile and a solid gold guidepost six inches square and six feet high at the end of every tenth mile. By inclusion of the gold and silver in the pavement itself the width could be increased two inches, which would be of advantage to those that meet one-arm drivers at night. Such a pavement would cost only \$601,762.42 a mile, which is not incomparable with the cost of other roads actually constructed in many places. And this would be a versatile, as well as a durable, pavement. In case of war we could shoot it at the enemy and lend the mileposts and guideposts to our allies; but in such a contingency we should have a definite under-standing with the Secretary of the Treasury and his successors.

"This metal would be sufficient to erect eight and one-half monuments, all solid and rec-tangular, of the same base and altitude as the Washington monument here. Or it would be sufficient to provide two ninety-pound railroad rails around the earth at the Equator with a branch line to Salt Lake City and 577 miles of

sidetrack.

"The copper produced in Utah would make sufficient No. One B. and S. wire to reach from the earth to the moon ten and two-tenths times. if the moon is where the astronomers say it is. If not, this statement should be amended. The lead production is equal to more than twice the tean production is equal to more than twice the total displacement of all the fighting vessels of the U. S. Navy. And the silver, converted into the form we believe it ought to have, would be sufficient to lay a path of silver dollars nine inches wide from Salt Lake City to New York, via Washington, with enough left over to lay a path on both sides of Broadway and a cross-town path at Forty-Second Street. We sometimes think the industry in Utah has spent about the equivalent of that path on that iden-tical route since the intrusion of surtaxes, depletion and other invaders of what we now know used to be a happy life."

Statistics furnished by A. G. Mackenzie, Secretary, Utah Chapter, American Mining Congress, at the 30th Annual Convention.

determination was not absolutely "cor-rect," then it becomes not merely his right but his duty forthwith to make the "correct" determination, except where the statute of limitations has run. Now we know that the several commissioners have all recognized the impossible situation which would exist if, every time a new decision or opinion were given, an attempt were made to search the files for every case which might have been otherwise closed. There has been a definite policy, ever since the days of Com-missioner Roper at least, to let closed cases remain closed. Nevertheless, the doctrine is preached, and is sometimes invoked, that the commissioner can and

invoked, that the commissioner can and should reopen any case which he later feels was wrongly determined.

Of course, the commissioner never knows when he assesses a tax whether or not it is "correct." This he can not know until years afterwards when every work that the state of the state point involved shall have been passed upon by the Supreme Court, Would it

not be fairer to him, as well as fairer to the taxpayer, to make it clear in the law that no such impossible standard was ever intended?

I do not blame the commissioner or other department authorities for this situation. I think they have only been trying to live up as best they could to an impossible standard which was written into the law. Perhaps they should more boldly have gone to Congress and said that the standard was an impossible one, but anyone is reluctant to say that he can not live up to the standard which is set for him. Had the commissioner and his associates balked at the impossible they never could have administered our war-time They took the impossible, and by one device or another made it work to collect the unprecedented amount of war-time revenue. Wartime methods are necessarily quite arbitrary and often somewhat unfair, and high tax rates always give rise to an inquisitorial and dictatorial procedure. But these have no place in a peace-time system. A time of abounding revenues is particularly a time for consideration of fairness to the taxpayer, regardless of what may have been considered necessary in a time of war or financial stringency.

Now, I can not pretend that the average taxpayer is thinking all I have been saying as to how some greater fairness to him might be brought about in our administrative system. But I think I can say that he is criticizing as unfair the general system as it now exists. does feel that he should have some more definite standards according to which he could prepare his return and swear to it; that when his sworn return is filed it should be entitled to some credence: that additional taxes should only be imposed if the department can give definite reasons therefore, and that he is entitled to a statement of these reasons; that decisions upon protests and hearings should be given by those who have heard the case; that when, after due examination and hearing, a tax has been determined and paid, this ought to be its final determina- (Continued on page 43)

THE menace of the aggregation of power and the centralization of authority in the federal government is a subject you know. I was elected to Congress 33 years ago, and in that third of a century there has been a marvelous change come over the spirit of our people in that regard. Alexander Hamilton believed in a strong centralized govern-And the Republican party came ment. And the Republican party came along in that line of succession. The Democratic party believed in state's rights, and for a long time they prevented in a way, and to a great degree, centralization in the federal government. But we have all got to believe the same thing so far as appropriations are concerned, and we have all fallen in with

the idea of letting the government do it. You say, "What do you mean by that?" I will tell you what I mean by it. This is a government through parties, and while its present system is maintained it can not be governed in any

other way, because by that means alone can the people determine what policy of government they want adopted for the next four years. Party government is responsible government. Individual and personal government is not responsible government. And the primary system has undermined parties to such an extent that the party hold is lessened and today we have groups and blocs and cliques and classes and clans, and they, through the primary and by personal solicitation through their representatives in Wash-

ington, can bring about legisla-tion in the interest of these groups and classes that otherwise could not have been obtained.

Is that a plain statement of my belief on the question? I have seen that over on the question? I have seen that over and over and over again here in the city of Washington. The tendency to cen-tralize government is the tendency to "let George do it." Let the government do it. It is a wrong policy in a repub-lican form of government. It may do to centralize power in a monarchy, where the one great sovereign head stands out as the supreme master of the situation, but in a republic devoted to the equality of men, which is the fundamental idea that underlies this government, it is for-eign to our policy and should not be carried to the extreme in which it has in the days gone by.

In the first place, it is very expensive. We have literally an army of people in the employ of the government. And they are going about everywhere, nosing into people's business and spying around over the country everywhere to the great annoyance of people in the business interests and industries of the country.



GROWING TENDENCY TOWARD CENTRALIZATION of GOVERNMENT*

By Hon. James E. Watsont

Primary System Has Undermined Responsible Party Government-Centralized Government Has Brought About A System Of Espionage And Is Eliminating Personal Initiative And Endeavor That Has Characterized Us As A Nation-Forty Boards And Commissions Are Working In Washington, Which When Once Created Can Never Be Discontinued

> We all know that to be true. And that system of espionage has come to be system of espionage has come to be almost unbearable in certain industries and in certain sections of the United States. It costs money to do that. And yet you groan under taxes and turn squarely about and demand that the other fellow shall be put under government surveillance and supervision. That is where the big expense of government

We will appropriate within a few days three billions plus to pay the expense of government for the next running the year. Approximately seven hundred and fifty millions of that will be for interest and three hundred and twenty millions plus for the sinking fund—a billion dol-But all together too large a sum is paid out because of centralization of authority in our governmental affairs in Washington.

But, after all, the big objection to cen-tralization of authority here is this: It takes off that fine keen edge of personal initiative and endeavor that, after all, has characterized us as the greatest na-tion in the tide of time. Individual initiative and individual endeavor constitute the mainspring responsible for this marvelous advancement that has characterized our American civilization. And the

more we let the government do it, the less we rely upon the individual, and the less we rely upon him the more we curb his ability and limit his power to do these great things. And yet the tendency is almost irresistible.

We had not very long ago a proposition before us to create another department of the government and have the President appoint a Cabinet member to head it, to be known as the Department of Human Welfare. Human welfare! That means weifare. Human weifare! That means everything on earth from birth to resurrection. Talk about power in the hands of any man. I couldn't conceive of any man having greater power than the power there would be in the hands of a man at the head of a department of that kind, who could call out the great army of men that would be used in the attempt

enforce the ideas that such a department would stand for. You talk about saving money in the other depart-ments. You might skimp and save money in other departments, but you would dump it in that department like

pouring it into a vast chasm. Well, fortunately we managed to curb that and prevent it. But all the while there are certain groups of people that are here demanding that new departments be created, that new armies be employed, that new forces shall be brought to the city of Washington for the purpose of help-ing administer the affairs of our government. We sit here and see the danger.

I had a cottage part of the

time this summer up in Michigan
City. The waves would wash up
on the sands and flow back. Apparently the sand would stand out against the waves, but I noticed in the course of four months that the beach finally was giving way before this continuous washing of the waves that swept up on the sand. I couldn't notice it in one day, but in the length of time you notice it. And it is the eroding character of this continuous drive by segregated groups in the city of Washington to have specific things done in their swe to have specific things done in their own particular interest that finally washes away these old constitutional foundation

And we find ourselves with a centralized force in Washington that our fathers never dreamed of. We have got 40 boards and commissions doing business here. The people do not elect those commissions that the people do not elect those commissions. missioners. They can not reach them in any way. The only way to reach them is to reach the appointing power, and then you do not reach them. You simply change the personnel, or you may or may not. The boards and the commissions and the bureaus remain. And you have a bureaucracy that is inimical to the best interests and the highest concern of a republic devoted to human equality, based upon individual initiative and individual creative genius. (Continued on page 50)

^{*}Address delivered before Thirtieth Annual Convention of The American Mining Congress, Washington. D. C., December 3, 1927. † United States Senator from Indiana.



Panorama of Picher, Oklahoma

The ZINC MINING INDUSTRY in 1927*

By JULIAN D. CONOVER †

With Many Forced Closings Overproduction In Zinc Industry Persists—World Production For Year Increased Three Percent, With Tri-State District Production Off Twenty Percent—Association Activities, Legal Restrictions, Metallurgical Progress And Tariff Necessity Discussed

THE year 1927 has been less satisfactory to the zinc mining industry than those which immediately preceded. Consumption of the metal, which, according to the American Bureau of Metal Statistics, has fallen off slightly in the United States, has in-

creased in the world as a whole by about 3 percent. Production from the mines, however, has more than kept pace, and both in the United States and the world at large there has been some overproduction. As compared with an average price for 1926 of 7.3 cents, and for 1925 of 7.6 cents, the average price of the metal for the year 1927 to date has been about 6.3 cents, and the price has recently been as low as 5.6 cents.

has recently been as low as 5.6 cents.

The Tri-State District of Oklahoma, Kansas and Missouri continues to be the leading factor in the zinc-mining industry. With the lower prices, however, production and shipments from this district have fallen off about 20 percent from the record figures established last year. A large number of the lower grade mines have been shut down and many of those which are operating are making but small profits, insufficient to cover depletion and depreciation of their properties. The base price for 60 percent zinc concentrates, which in 1926 averaged \$48.65, has recently been as low as \$35 per ton, and since the average cost of producing a ton of concentrates from the mines of the district is

close to \$45 a ton, it is evident that only the richer mines can continue to operate. At the same time, production of zinc in other districts, particularly in the western states where large amounts are now being produced by selective flotation, has continued to increase, and the proportion of the zinc of the country supplied by the Tri-State District has fallen from 66½ percent of the total metal production in 1926 to about 57 percent in the first 10 months of this year.

TRI-STATE DISTRICT

Conditions in the Tri-State District are in some ways unique in the metal mining industry. There are in this district more than 100 distinct mining companies, each controlling from one to as many as 15 separate mines. The ore bodies occur at shallow depths, ranging from 150 to 400 feet in different parts of the field and underlie a flat, prairie country. Much of the mining in Oklahoma is on lands belonging to Indians, a considerable number of whom are wards of the Government and whose property is administered by the Secretary of the Interior. Fractically all the mining in the district is done under leases obtained from the landowners, who receive a royalty on the product sold; and the fact that the land is divided into small tracts of diverse ownership, on each of

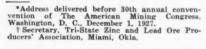
which, in case ore is discovered, a separate concentrating mill is necessary, has resulted in the building of a very large number of such plants. There are at present 187 mines, with ore in sight, equipped with adequate mills to handle their ore.

Conditions similar to these have existed for some time, and have meant a capacity for production far in excess of actual demands upon the district. This is not a healthy condition, and had it been possible to look far enough into the future, when the great Oklahoma-Kansas section of the field was developed during the World War, it might in some part have been avoided; but at present, to use the words of Cleveland, it is a condition which confronts us and not a theory. Today the situation is even more acute than it has been for some time, and only 102 of the 187 mills noted above are running, all but 13 of these being on a single-shift basis six days in the week.

The ores mined produce on the average about 6 tons of 60 percent zinc concentrates to 1 ton of 80 percent lead concentrates, both products being sold in a weekly market to representatives of the smelters. The proportions of zinc and lead vary in different mines, but the above average indicates that the district is primarily a zinc producer, and that its lead is more or less of a by-product.

EFFORTS TO STABILIZE THE INDUSTRY

The operators of the Tri-State District have in the last few years devoted a great deal of thought to the economic condition of their industry. Producing





Wilbur Mine, Commerce Mining and Royalty Co., Miami, Okla.

nearly two-thirds of the country's zinc and one-third of the world total, it has been evident that the rate of production in the Tri-State Distriet, in relation to the demand, must exert a dominant influence at least upon the United States market. The productive capacity of the field has been such that with unrestricted production it could easily glut the market and force prices down to the depressed levels of 1921. Such a course, however, would mean financial ruin to many in the industry and the rapid exhaustion of the ores of the district.

Many of the operators of the district have not wished to throw away a valuable mineral resource, and have sought to adjust production to the actual market demands. Since the effort of any individual operator toward this end by itself must necessarily be futile, an association was formed to study this problem. Competent legal advice was secured, and it was evident that the only way in which the organization could legally function in the interest of stability was through the collection and dissemination to the members of complete statistical information. Such work was undertaken, and regular reports issued giving statistics of production, sales, stocks, costs of production, and other significant items, with the aid of which the individual producer could more accurately gauge the actual market situation and regulate his own business accordingly.

Through the functioning of the operators' association, important results have been accomplished. In particular there has been a much more intelligent conduct of output than would otherwise have been possible, resulting in general prosperity for the mining industry and for the district. The results accomplished, however, have fallen considerably short of what is to be desired, largely owing to the legal limitations against any agreement or concerted action by the producers in the interests of stabilization. This subject will be discussed in some detail by Judge A. Scott Thompson at one of the sessions of the Congress. Certain producers, also, have not seen fit to apply any restraint to their production, and have even increased their output and put on extra shifts at times when the broader-minded producers have curtailed their output. As a result, some of the latter have begun to study other possible aspects of the situation, and there has even been press comment suggesting that there might be a production "war," accompanied by great overproduction and piling up of stocks, and resulting in a "survival of the fittest," forced upon the entire industry by those who have been unwilling to "play the game."

The zinc concentrates of the Tri-State District, with the exception of a small proportion used in the making of zinc oxide, are at present smelted entirely by the retort process. About half of the smelters are located in the gas belt of Oklahoma, Arkansas and Kansas, and the other half in the coal fields of Illinois, Indiana, Pennsylvania and West Virginia. The bulk of the ore requirements of these smelters is met by the Tri-State field, but only about one-fourth of the production of the field is controlled directly or indirectly by zinc smelting companies and the balance by independent mining companies. The prices offered in the weekly market by the smelters have shown such a high degree of uniformity that it has been

openly suggested that there was absence of competition in buying.

In the current year, the smelters have had a margin between the price paid for concentrates and that received for the metal, which has been about \$3 less per ton of concentrates than existed in 1926. A number of the higher cost plants have suspended operations, and it is generally stated by the remaining smelters that as a whole they are unable to make any money. A number of meetings of the Joint Smelters-Producers Committee of the American Zinc Institute have been held in the endeavor to ameliorate the situation, but while



Julian D. Conover

progress has been made toward furnishing more complete statistics to the industry, as yet no definite plans of action have been evolved. Here again legal limitations have been encountered, making difficult any movement to place the industry on a sound basis.

METALLURGICAL PROGRESS

In the Tri-State District the industry has made considerable progress in the last few years along metallurgical lines. The general introduction of flotation in the mills has resulted in greatly improved extraction of values in the ore, and has made possible the working of many ore bodies which would otherwise be too low grade, as well as the reworking of many of the great tailing or "chat" piles. Some 30 mills are now retreating tailings and producing about a tenth of the district's output. Approximately 20 percent of the zinc of the district is now produced by flotation, and probably another 20 percent of the production would not be possible at present prices were it not for flotation and the consequent increased recovery.

The flotation product, being of much finer texture than the gravity concentrates, at first caused considerable difficulty at the smelters and was heavily penalized, but adequate facilities for handling it have now been installed at some of the plants and penalties have been decreased. Certain other improvements in smelting practices have been made, but generally it is felt that the retort smelting industry, because of its inher-

ent nature, has lagged considerably behind other branches of the zinc industry from the standpoint of recoveries and costs. One fact which is frequently referred to in this connection is that Tri-State concentrates, which are, with few exceptions, the cleanest and most uniform zinc concentrates produced in the world, are at present utilized almost entirely in the production of the poorest and lowest priced grades of metallic zinc.

OTHER ZINC MINING DISTRICTS

As was stated above, the equivalent of 57 percent of the metallic zinc produced in the United States in the first 10 months of this year has come from the Tri-State District, or approximately 50 percent of the total zinc mined for all purposes, including that used for oxide manufacture and that which was exported in the form of concentrates.

Of the remainder of the country's production somewhat over a third comes from a number of districts in the Mississippi Valley and the Eastern States. Principal among these districts are Franklin Furnace, New Jersey; southwestern Wisconsin; eastern Tennessee and western Virginia; and Edwards, New York. The other two-thirds comes from the mining districts of the West. An interesting development has been the production of a small quantity of flotation concentrates in the southeast Missouri "lead belt," which may increase somewhat. There are possibilities of increased production in eastern Tennessee and at Austinville, Virginia, as well as in New York. The Wisconsin District, on the other hand, is feeling the effect of low prices, and it is reported that a number of the important mines have recently shut down for an indefinite period.

The zinc production of the West has increased notably in the last few years. The effect of the flotation process upon zinc production has been far greater than zinc production has been far greater than in the Tri-State District, since in many cases it has made possble the recovery of zinc from ores in which it was formerly entirely wasted, either at the mill or the smelter, and has made it possible to utilize various complex lead-zinc-silver ores, which formerly could not be economically treated in either a lead are economically treated in either a lead or a zinc smelter. Such ores are now separated at the mill into two and sometimes three commercial products. A considerable number of mills have been revamped to take advantage of these derevamped to take advantage of these developments, various large new plants have been built, including several custom mills, which handle the product of a number of mines, additional reserves of ore have been developed or made available, and some new mines have been opened up. This subject has been intensively expressed in the terror of the several products of the several plantage. sively covered in the technical literature. As a result of these developments, production of lead and silver in the West has shown notable increases, while the production of zinc, which was previously discarded in many cases and now produced as a by-product, has increased with great rapidity. The largest increase has been in Utah (chiefly from Bingham and Park City, with some from Tintic and scattered producers), where the production of zinc concentrates (50 to 55 percent Zn) mounted from 25,000 tons in 1924 to 144,000 tons in 1926—including, however, some production from Nevada and Colorado ores shipped to custom mills.

Other important zinc producing districts in the West are Butte, Mont.; the

northern d'Alene District Coeur Idaho; the San Juan, Leadville, Gilman, and lesser districts in Colorado; Pecos, Hanover and Magdalena, N. Mex.: and smaller producers in Arizona, Nevada and California. The production of the Northwest—that is, of Montana, Idaho and Utah-has mainly been treated at the Anaconda electrolytic plant at Great Falls, the capacity of which was last year increased to 10,000 tons of metal per month; but this plant has recently been unable to handle all the increased production available, and large quantities of these flotation concentrates have been shipped to retort smelters in Oklahoma and Texas. Most of the Colorado ores, as well as those from Arizona and New Mexico, are also shipped to retort smelters, though some of them are used in oxide manufacture, and in recent years there has been a considerable tonnage of zinc concentrates exported to Europe from these states and from California and Idaho. Of the total western produc-Of the total western production in 1926, probably between 50 and 55 percent was treated at the Great Falls electrolytic plant, 25 to 30 percent at retort smelters, about 10 percent used in making zinc oxide, and 12 percent exported to Europe.

LARGE INCREASES IN WESTERN PRODUC-TION

The zinc production of the western states increased in 1926 nearly 40 percent, and will show a further increase in 1927 though not by so large an amount. A few new properties have begun production on an important scale, amount. including the Pecos mine and mill of the American Metal Company in New Mexico, the International Smelting Company's custom mill at Rico, Colo., and more recently the custom concentrator of the Phelps-Dodge Corporation at Humboldt, Ariz. Various other properties have enlarged their scale of operations or improved recoveries. In other districts, however, there has been a considerable decrease of production, and particularly in the case of mines which are primarily zinc producers as compared with those in which the principal revenue is received from lead and precious metals The demand for zinc concentrates for export to Europe has slackened, and with the discontinuance of one of the main lines of export movement, from the Coeur d'Alene district to Belgium, a number of mines in that district were shut down. It is expected, however, that these will reopen upon the completion of an electrolytic plant now under construction at Kellogg, Idaho, which will provide a local market for

A new source of zinc is being developed by the Anaconda Copper Mining Company at East Helena, Mont., where it is erecting a plant for treatment of leadfurnace slag. This will start, according to announcements, with a daily capacity of 200 tons of slag, which may later be enlarged to 500 tons, the process being one of fuming off the lead and zinc in the slag as oxides and recovering them in bag-houses for treatment at the electrolytic plant. Since much of the old slag is said to contain 10 percent zinc or over, this will be watched with much interest.

To provide for more efficient treatment of the increased zinc production of the Northwest, additional electrolytic plant capacity is under construction, both in the Coeur d'Alene district, as noted above, and at Anaconda, Mont. When these are completed the electrolytic production of the Northwest will be between 18,000 and 20,000 tons a month, or nearly double the present amount. Such a rate of production is about 40 percent of the entire monthly production of zinc in the United States at the present time. Considering comparative costs, it seems probable that this additional electrolytic metal will displace a corresponding amount of metal produced by retort smelters.

The effect of increased recovery of western zinc upon the Tri-State District is already evident in a lessened demand upon this district; and whereas in 1926 the smelter requirements averaged over 16,000 tons of concentrates per week, it is apparent that this is now being materially reduced. Such effect is likely to become somewhat greater as develop-ments referred to above are carried out. There has been no disposition on the part of western producers to withhold production, it being generally stated that their lead and precious metals furnish the principal source of revenue, and that their zinc is a subordinate factor. It appears true, however, that there is an overproduction of lead as well as of zinc, and a general curtailment of lead production, bringing with it automatically a decrease in output of zinc-if it could be legally attained-would benefit the entire industry. Also of great benefit to the industry, it may be remarked, would be a further energetic development of pres ent and new uses of the metals. Tri-State District can doubtless produce whatever may be required from it for many years to come; in fact, it is equipped to produce on a scale to meet much larger demand than is now in sight.

It is difficult to make predictions for the future, but it seems probable that the increases in zinc production from western mines which have already taken place or are definitely in prospect, as referred to above, represent the major part of what is to be expected, and that production will not continue to increase The rapid increase in the West has been due to a combination of favorable factors, including high prices for both lead and zinc the last few years, the application of selective flotation, and the fact that there were large reserves of zincky ores in many mines, the presence of which had been known for some but which had heretofore been avoided because of difficulties in treatment. The major effect of these factors has probably now been witnessed. There are many mines which still have large zinc reserves, but in others the more easily accessible ores have been heavily drawn upon, and there have been few really new discoveries of importance which have contributed any large amount of zinc. In many places continuation of mining means going to greater depth or mining lower grade ore, with a corresponding increase in cost. Present prices are not favorable and there are various mines which are feeling the pinch of narrowing profits. There is one factor in the situation the importance of which is not yet fully apparent and which is difficult to appraise, this being the recovery of zinc from old lead-furnace slags as in Montana. Outside of this. however, it seems probable that the curve showing increase of western zinc production, which has been mounting so rapidly

in the last few years, will soon begin to flatten out, and will then either rise or fall gradually as price conditions vary.

WORLD PRODUCTION OF ZINC—TARIFF PROTECTION ESSENTIAL FOR DOMES-TIC INDUSTRY

In the countries adjoining the United States, and in fact in the world at large, it would appear that the effects of improved zinc metallurgy have not progressed so far as in this country, and some large increases in production are to be expected.

In Mexico the application of selective flotation has caused the output of zinc to double in each of the past two years, to about 100,000 tons of recoverable metal in 1926, and there are further large possibilities. Most of these ores are exported to Europe for smelting, though a few thousand tons per month are brought into the United States for smelting in bond, and a much larger quantity would doubtless be brought in to compete with the domestic product if it were not for our tariff.

In Canada the immense Sullivan mine in British Columbia has been increasing its output of cheaply produced zinc. The electrolytic plant at Trail has been enlarged to a capacity of 100,000 tons of metal yearly, its largest source of supply being the Sullivan mine, though there are numerous other zinc producers and large undeveloped potentialities in various parts of the province. Other districts where large-scale zinc production is defi-nitely in prospect include northern Manitoba, the Sudbury district in Ontario, and the new Rouyn copper-gold mining district of Quebec. In connection with these developments, there is talk of at least two electrolytic zinc plants. There is much additional prospecting and development of lead-zinc ores in eastern Canada, and increasing zinc production is to be looked for from this country. Against this the protection for our do-mestic industry afforded by the present tariff is essential.

In Newfoundland a large lead-copperzinc ore body is being actively developed and equipped with a selective flotation mill. This is expected to be in operation in 1928, and judging from the grade of ore to be worked would appear capable of producing concentrates equivalent to 25.000 tons of recoverable zinc per year.

Limitations of time permit us to refer only briefly to certain developments in the zinc industry in other parts of the world.

The production of zinc concentrates in Australia passed its peak some time ago and does not seem likely to again become so important a factor as it once was. Production in Spain also seems more likely to decrease than to increase. In Silesia, however, with the development of the Giesche properties by the Anaconda company, considerable increase in output seems likely, and a large part of the ore will be converted to metal electrolytically. The Bawdwin mine in Burma, with a large tonnage of 20 percent zinc ore, could probably produce considerably more zinc than at present, and there are reported to be other important deposits in this general region, as yet difficultly accessible. In Rhodesia, South Africa, there are large deposits of lead-zinc ores which are now being exploited, and an electrolytic plant is expected to be producing metallic (Continued on page 56)



Rear view,
Pittsburgh Experiment Station, U. S. Bureau of Mines,
showing main
building, power
house and fuel
laboratory and
other smaller
buildings for
special purposes

WHAT the UNITED STATES BUREAU of MINES IS DOING for the MINING INDUSTRY

By SCOTT TURNER*

A T the Annual Convention of the American Mining Congress, held in Washington early in December, 1927, the Bureau presented a kaleidoscopic picture of its activities by means of short talks by heads of branches and divisions; the work of about 20 of

these subdivisions was described by the men in charge of them, and it is hoped that the delegates to the Congress were thus able to better understand the work of the Bureau and to become more familiar with the personal characteristics of various Bureau engineers who previously had been known to the members of the Congress by name only.

During the course of this 2-hour symposium, it was my duty to explain the grouping of the Bureau's personnel and activities into four major parts, designated in the Bureau's organization chart as branches; these four branches are, in the chronological order of their creation, the technologic, economic, health and safety, and administrative branches. All but the first were created within the past two years. The name of each branch indicates the general field it covers, and each branch is divided into divisions, sections and units. The annual reports of the Director of the Bureau to the Secretary of Commerce contain a reproduction of the organization chart, but it may be well to state here that there are 16 divisions, 80 sections, and 61 units in the Bureau. The technologic branch embraces seven divi-

A Review Of The Work Of The United States Bureau Of Mines In Behalf Of The Mining Industry—Chief Activities Devoted To Two Broad Fields, Conservation Of Life And Efficient Production And Utilization Of Minerals

sions, as follows: Explosives, mechanical, experiment stations, petroleum and natural gas, metallurgical, mining, and helium; the economics branch has five divisions, as follows: Petroleum economics, mineral statistics, coal, rare metals and non-metals, and common metals; the health and safety branch is made up of two parts, the health division and the safety division, while the administrative branch embraces the division of office administration and the information division.

Having thus outlined the organization of the Bureau and the allocation of work and duties to particular groups, I shall make a brief record of certain features of the Bureau's work.

The service rendered by the Bureau of Mines to the Nation's great mineral industries lies within two broad fields of endeavor—conservation of the life and health of the million miners and quarrymen and the million or so workers in the metallurgical and petroleum industries; and the efficient production and utilization of the minerals which these millions of men labor to exploit for the comfort and welfare of mankind. Incidentally, both of these lines of endeavor lead toward more profitable operation, because accident-prevention also means

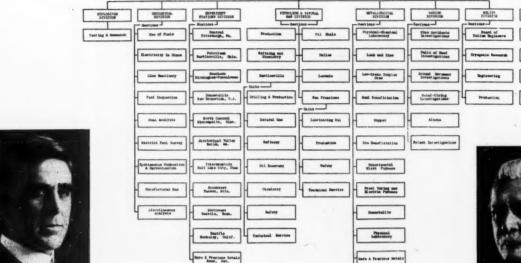
reduced expenses and greater

Broad
ProFrevious to the establishment of a Federal Bureau of Mines, certain coal mines of the Appalachian region were visited by a series of terrific explosions, which resulted in appalling loss of life and shocked the Nation into a realization

snocked the Nation into a realization that something must be done to safe-guard the lives of the men toiling underground. As a result of this aroused public sentiment, the Bureau of Mines came into being on July 1, 1910. While in the Bureau's organic act authorization was made for investigations looking toward the prevention of waste and the increase of efficiency in the mining, treatment, and utilization of the different minerals, the Bureau's immediate great task was to concentrate on mine-safety studies. Therefore, some years had expired before funds and personnel were available for the study of better mining, metallurgical and oil-production methods.

Notwithstanding investigative work regarding the explosibility of coal dust that had been performed in Europe, the fact that fine coal dust suspended in a mine atmosphere constitutes a real hazard had not been generally realized by the coal-mine operators and coal miners of the United States. In order to demonstrate the real truth of the matter, the Bureau of Mines conducted a long series of tests—first, in a specially constructed steel gallery, then in its own experimental coal mine near

^{*} Director, Bureau of Mines.



Right and left—Heads of Departments, U. S. Bureau of Mines, who addressed the convention



Dr. C. E. Munroe

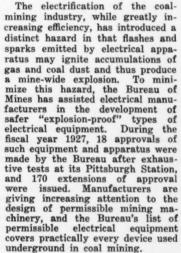


Harris & Ewing

A. C. Fieldner

Pittsburgh, Pa.-in which the dusts of bituminous coal mines from every field in the United States and some foreign countries were used. From time to time the mining public was invited to witness the terriffic dust explosions that were brought about under conditions such as were likely to be encountered in the country's coal mines. Following these experiments, the coal-mining industry accepted without question the general fact of the explosibility of coal dust, and this acknowledgment constituted a great stride forward in the movement of safety in mining. One particular service which the Bureau is still prepared to render the mining industry is the testing of bituminous coal-dusts to determine their degree of explosibility. Tests of this nature are constantly being made for operators, who are thus better informed as to the precautions necessary to prevent mine explosions.

With the fact of the explosibility of coal dust thoroughly established, it became necessary to give attention to those factors which were apt to initiate a dust explosion. Important service rendered by the Bureau in this connection has been the development of the "permissible explosive," which is immeasurably safer than black powder or dynamite. The constant educational campaign conducted by the Bureau is resulting in use by the mining industry of a continually increasing percentage of these safest of all explosives. The sales of permissible explosives have grown steadily, and in 1926 amounted to more than 67,000,000 pounds, the highest reported for any year. In order that the industry may be kept informed, lists of permissible explosives are published by the Bureau at intervals of a few months.



fire freezing

The Bureau has also conducted an extensive series of tests designed to provide safer and more efficient types of miners' cap-lamps. As a substitute for the open-flame lamp, which has been the cause of many disastrous mine explosions, the Bureau has assisted in the development of various types of "permissible" electric cap-lamps, the use of which is increasing rapidly in the American coal-mining industry, thus helping to eliminate one of the great hazards of coal mining.

Through numerous demonstrations in the course of actual made-to-order explosions in its experimental coal mine, the Bureau of Mines has clearly shown the efficacy of the practice of thoroughly rock-dusting bituminous coal mines as a means of preventing and limiting mine explosions. The Bureau has also emphasized the fact that the rock-dusting must be adequate and



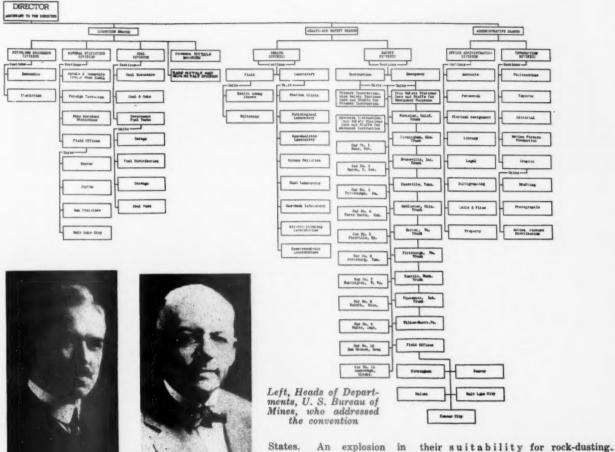
F. J. Katz



Harris & Ewing C. E. Julihn



Dr. R. R. Sayers



O. P. Hood

C. P. White

States. An explosion in the world's largest coal mine, in southern Illinois, was, due to the mine being thoroughly rock-dusted, re-stricted to

the immediate area of its origin, resulting in a loss of but five lives, although 1,200 men were at work in the mine at the time. But for rock-dusting,it is practically certain that a shocking loss of life would have been sustained on this occasion. In this connection, the Bu-reau is rendering service to the industry by analyzing at its Pitts-burgh Experiment Station samples of shale, sand-stone, dolomite, gypsum and other



H. H. Hill

systematic, else it is worse than useless. The practice of rock-dusting coal mines has saved the lives of hundreds of Scott Turner, Director of U. S. Bureau of Mines American coal miners within the past two years,

and although it is not generally compulsory, its use is increasing in the United



of Mines

materials that coal-mine operators may submit for examination to determine

Realizing that approximately half of the deaths in the coal mines of the country each year are caused by falls of the mine roof, the Bureau has begun an extensive study of this problem. The first opportunity to obtain practical results has been in West Virginia, where the cooperation of the State Department of Mines was obtained. In the course of this cooperative campaign, the number of fatalities from falls of roof was largely reduced in comparison with previous years, while the tonnage of

coal produced was increased.

Another service rendered to the industry by the Bureau is in the furnishing of confidential reports to operators of mines where disasters have occurred, these reports analyzing the probable cause of the fire or explosion and containing recommendations for minimizing explosion hazards. Safety inspections of par-ticular mines are frequently made by Bureau engineers and confidential written reports of the findings are sent to the operators, who generally put the recommendations, at least in part, into effect.

The Bureau has conducted extensive studies of air and ventilation conditions in the metal mines of the western states, has helped to solve the problem of operators of metal mines where silica dusts have impaired the health of the miners, and has assisted the industry in the solution of health and safety problems far too numerous to recite herein detail.



Rare and Precious Metals Experiment Station, U. S. Bureau of Mines, Reno, Nev.



Petroleum Experiment Station, U. S. Bureau of Mines, Bartlesville, Okla.

During the past fiscal year, the Bureau of Mines gave first-aid or minerescue training to 39,200 miners in 581 mining, metallurgical, quarrying, or oilproducing communities in 40 states and Alaska. It was the Bureau's most successful year in this respect. The total number of miners trained by the Bureau since its creation is about 235,000. There have been numerous instances where the prompt ministration of first-aid methods to injured miners by their Bureautrained fellow workers has saved life underground. Through the Bureau's efforts in training the miners, it is now possible, in time of emergency, to obtain promptly the services of skilled rescue workers in practically every mining community in the country.

Turning from the subject of safety in mining, I shall endeavor to review briefly that other broad field of endeavor, the conservation of those stores of mineral wealth with which nature has endowed the Nation. In this field, it is the Bureau's aim to assist industry in the betterment of methods of mining and the improvement of processes of treatment and utilization to the end that waste may be eliminated, production costs reduced, and materials valueless in the past made to do their part in contributing to the wealth and comfort of the world.

Through the study of blasting methods in certain coal mines, the percentage of lump coal was materially increased, while in the metal mines the Bureau has shown that the cost of mining can be decreased appreciably by proper blasting methods and care in the selection of explosives. The Bureau has studied the mining of flat, thin beds of anthracite, with a view to increasing efficiency in this operation. Studies of the mining of the coal at the face in typical Southern coal mines are being made with the object of formulating recommendations for improved practice. In a certain Alabama iron-mining district, special methods of mining development must be employed to win ore that is badly folded and faulted. The Bureau, after investigating the situation, has recommended methods of mining and handling the ore which give promise of ultimate successful application.

The cost of timbering the mines of the Nation is a large item. In different fields, the Bureau has conducted extensive studies designed to aid the mine operator in reducing timber costs by the

application of better methods of timber preservation.

In line with the tendency of all American industries to attain greater efficiency by the use of labor-saving machinery, the underground loading machine is now playing its part in lowering the cost and increasing the volume of mineral production. The Bureau has given close study to various types of these machines, and one of its engineers prepared a comprehensive report on this subject, which report has attracted widespread attention.

The Bureau has conducted an extensive investigation of the mining of coal by stripping-a method which is coming more and more into vogue. It has studied efficiency in tunneling, drainage of mines, and the screening of coal and ores, and has prepared reports on all these subjects for the information of industry. At its Pittsburgh Experiment Station, the Bureau yearly analyzes many thousands of samples of American coals. Before the Bureau began this work, there were practically no exact data as to the characteristics of the coals produced from the Nation's thousands of mines. Through this service, the coal-mine operator is enabled to determine the particular purpose for which his coal is best adapted, and thus is assisted in his efforts to find a profitable market. The Bureau also led the in fuel-combustion studies, providing fundamental data which has influenced greatly present-day principles of

fire-box and boiler design. In the field of metallurgy, the Bureau of Mines is conducting numerous investigations as to the treatment of lowgrade ores and minerals that can not be profitably treated by existing methods, and as to improvements in ore-dressing processes whereby losses of valuable minerals not now being recovered will be lessened and better concentrations and separations effected. Since the metallurgical work of the Bureau of Mines was organized, in 1914, advances have been made in the treatment of low-grade ores. Metals having a value of millions of dollars are yearly being recovered from deposits that were for-merly outside the zone of profitable operation. The Bureau has aided in effecting advances in the separation of mixed lead-zinc-iron ores of the western states by selective flotation; the recovery of silver, lead, and gold from complex oxidized and partially oxidized ores of

the Rocky Mountain region by brine leaching and chloridizing roasting; the milling of the lead and zinc ores of the Mississippi Valley; the treating of the low-grade copper ores of the Southwest; and the beneficiation of the siliceous iron ores of the South, along with a beginning of metallurgical studies in the Lake Superior districts.

While the Bureau, of course, can not undertake to solve the metallurgical problems of particular companies, it has been able to render service to the industry by studying the problems affecting a particular district or a large group of mines. An example of this sert of service is the work done in connection with the problem of treating the "blue ores" of the Black Hills district of South Dakota, from which it was formerly impossible to make a satisfactory recovery of the gold. A long series of experiments conducted by the Bureau on this antimony-arsenic-gold-silver ore revealed the basic principle that makes the recovery of the precious metals possible.

The Bureau, at its North Central Experiment Station Minneapolis, Minn., operates the only successful experimental iron blast-furnace in the world. By means of this furnace, the Bureau's investigators are able to learn exactly what happens, under varying conditions, in every stage of the blast-furnace process. These studies are affording valuable new information which should ultimately lead to greater efficiency and reduction of costs in blast-furnaces.

A process for agglomerating fine material in leaching ores has been developed by metallurgists of the Bureau's Southwest Experiment Station, Tucson, Ariz., and promises wide application in the treatment of copper and other ores. This process offers great possibilities for the treatment of many millions of tons of low-grade copper-concentrator tailings carrying 0.2 to nearly 1 percent of copper; it also applies to large quantities of ores that slime in crushing or require very fine grinding.

require very fine grinding.

The Bureau is serving the copper industry in various other ways. Studies which promise to be of great economic importance to the industry have to do with copper precipitation by sponge iron; losses of copper in slags, and the conservation of heat in smelting; the treatment of ores by the ferric sulphate and sulphuric acid process; the treatment of copper-smelter flue-dust; and the sepa-

ration, after extremely fine grinding, of copper mineral from the intimately associated iron sulphides in the pyritic copper ores of the Southwest.

The Tri-State zinc district, comprising parts of Missouri, Kansas and Oklahoma, annually produces zinc and lead having a value of at least \$50,000,000, but with a milling loss which is roughly 35 per-cent of the mineral in the crude ore. The Mississippi Valley Experiment Station of the bureau, at Rolla, Mo., has for some years been assisting the operators of this district in the improvement of milling and metallurgical methods, in many instances achieving notable reductions in these losses of mineral. Among the problems being studied by the bureau with the object of effecting improve-ments in the treatment of lead and zinc ores are also the following-named: the electrothermic metallurgy of zinc, the condensation of zinc, the flow of heat through zinc-retort walls, the loss of lead in slags, the reduction of zinc oxide, the flotation of lead and zinc ganguematerials, the brine-leaching of lead ores, the hydrometallurgy of zinc, the calcination and gravity-separation of lead carbonate ores, and the combined roasting and flotation of lead-zinc-sul-

In a certain southern iron district, about 75,000 tons of iron is lost yearly as flue-dust escaping from blast furnaces. A study conducted at the bureau's southern experiment station indicates that, by the use of magnetic concentrators of various kinds, much of this loss can be prevented.

As a result of a study of the hydraulic classification of table-feeds where table concentration is used in the Coeur d'Alene lead-zinc district, the bureau has developed a new type of classifier which is now being used in the mills of that district with excellent results, improving the grade of the concentrates, as well as increasing table-recovery and canacity.

One of the few essential minerals of which the United States does not possess an adequate supply is manganese, which in time of war is absolutely vital because of its use in the manufacture of steel. Experimental work, conducted in cooperation with the Minnesota School of Mines, gives promise of the development of metallurgical processes which may make available to the iron and steel industry the manganese contained in certain low-grade manganiferous iron ores in northern Minnesota.

As the great bulk of the output of nonmetallic minerals, including crushed stone, sand, gravel, building stone, slate, and gypsum, and of such primary products as cement, lime, and plaster of Paris, enter into the construction of buildings and roads, this output affects the life of virtually every community and every individual. The vast quantities of these materials used and the increasing call for economy in their use and for better service from them have resulted in a growing demand for technical research. The bureau has been expanding its work in nonmetallics and has been able to point the way to the improvement of production methods in various nonmetallic industries.

Realizing that wastes in the quarrying of slate were enormous, ranging from 70 to 90 percent of the gross production, the bureau introduced into this country

the wire saw, an appliance which had been used to some extent in Europe. Experiments conducted in cooperation with slate producers have demonstrated that the wire saw will cut the slate in the quarry approximately twice as fast as is done with present equipment, with no shattering of the slate, and that the cost of operation is less than half that of present methods.

Recovery of highly valuable mica wastes, hitherto lost in the ground-mica industry tecause of incomplete settling in the wet-grinding process, is promised as the result of experiments at the Non-metallic Minerals Experiment Station with electrolytes as floculating agents.

In an important fluorspar district, the bureau has been able to assist the operators to reduce the loss of calcium flouride in the tailing and to improve the grade of the concentrate. As a result of the bureau's work, operators have adopted the principles of closer sizing and classification of table-feeds, and have thus obtained an increase in recovery.

In view of the fact that not more than one-fifth to one-fourth of the petroleum in underground deposits is recovered by present-day methods, the bureau is giving much attention to methods of increasing the percentage of recovery. By the use of natural gas for lifting the oil, the daily production of petroleum in a particular Oklahoma field was increased 240 percent in less than 18 months.

From time to time the bureau conducts special engineering studies of producing conditions in important oil and gas fields. Substantial increases in the production of oil from a number of fields have been effected through the work of the bureau's specialists, who recommend to operators methods of repairing the wells in order to control the movement of water into the oil-sands. In one Texas field, for instance, the total increase of production from wells repaired under the supervision of the bureau's engineers amounted to about 1,000,000 harrels.

Before the bureau began its studies in the technology of petroleum, very little was known regarding the characteristics of the crude oils produced in various fields of the United States. The bureau has now made available data regarding the physical properties of crude oil from all important fields in the country. This information is extremely valuable to the refiner, as it enables him to select the special petroleum best adapted for producing any particular refined product. Service tests conducted at the bureau's San Francisco field office have demonstrated the adaptability of California crude oils for making lubricating oils to be used in automotive equipment, and such tests pointed the way to savings in present refining processes.

Emulsions of water in oil cause enormous losses annually in the United States. In a recent two-year period 100,000,000 barrels of this cut oil was produced in the Mid-Continent and Gulf Coast fields, of which only half was successfully treated. As, in the same period, 568,039,000 barrels of crude oil was produced in the two fields, almost one-fifth of the oil production required treatment before it could be marketed, and as the average price for oil in the two fields was about \$2 per barrel a total

of some \$200,000,000 was involved. The bureau has given much attention to this problem, and has published a bulletin which points the way to large savings to the industry.

As a result of an extensive survey made by the bureau of losses from leakage of natural gas in pipe lines, it has been demonstrated that considerable economies can be effected by systematic leakage-surveys. The total savings on 26 gas pipe-lines tested by the bureau amount to 237,704,000 cubic feet yearly, or an annual saving of about \$65,000.

A new feature of the bureaus work, which is confidently expected to become of increasing advantage to the mining industry, is in the field of economics. The economics branch was established January 1, 1926, to consolidate, as far as practicable, previous work of the Bureau of Mines, and the Bureau of Foreign and Domestic Commerce, and other bureaus, on the economics of coal, petroleum, minerals, and metals. This work extends to all mineral products, including coal; ores of iron, copper, lead and zinc; nonmetallic minerals; rare and precious metals; and petroleum and natural gas. It includes studies and investigations into the reserves, volume of production, consumption, distribution, stocks on hand, prices, commercial uses, markets, trade conditions, and similar subjects. Publication of these data, with explanatory text and comment as to industrial conditions, is made generally through weekly, monthly, and annual reports. No industry can attain the highest degree of efficiency unless it be kept thoroughly informed as to all the trends and currents which affect its progress. The Bureau expects, through its Economic Branch, to be able to assist the mining industry in this respect.

WILL MODIFYING SHERMAN LAW SOLVE COAL'S PROBLEM?

(Continued from page 27)

and employes the opportunity to work out their own form of industrial rela-tions, opportunities which have been seized with amazing intelligence, until there has grown up and exists an era of good will between employers and employes which has never before been known in the history of the world with such large groups of people. If you admit that this opportunity of employes and employers in a particular industry to work out their own problems is to be destroyed, by eliminating the antitrust laws, and permitting organizations to prevent the distribution of products by those whose industrial habits they do not approve, then you are doing away with this experimentation in connection with industry, this pioneering in develop-ment which has been one of the geniuses of our American business men. not living in a time where we can see very far ahead in respect of our indus-trial institutions. We are not living in a time when things can be standardized so far as human relationships are con-cerned, and we are living in a time when it ill behooves us to adopt any plan of action which discourages this era of good will and experimentation that has worked so well in this country during the last 10

AN HOUR with the BUREAU of INTERNAL REVENUE

THE tax session of the American Mining Congress Convention was featured by what was described on the program as "The Bureau of Internal Revenue Hour." This was conducted by

Mr. H. B. Robinson, head of the Consolidated Audit Division, Bureau of Internal Revenue. In his opening remarks Mr. Robinson stated that during the last year

the Bureau of Internal Revenue, through a reorganization and consolidation of its various units, has expedited the valuation and audit of income tax re-turns. He stated that delay in the closing of re-turns is embarrassing both to the taxpayer and to the bureau, and should be avoided at all costs; and that



H. B. Robinson

it is the constant and hearty endeavor of the bureau to shorten the process of arriving at the tax liability in the shortest possible period of time. Mr. Robinson then introduced the following representatives of the bureau who have charge of different phases of the work of determining the tax liability of mining taxpayers: Mr. S. P. Hatchett, chief of the Engineering Section; Mr. E. P. McCrorken, chief of the Mining Sub-Section; Mr. Lloyd Gibson, chief of the Oil and Gas Sub-Section; Mr. H. G. Nichols, chief of the Audit Section, specializing in natural resource returns; and Mr. W. T. Cardwell, assistant chief of the latter section.

Mr. Hatchett reviewed the status of the work of the Engineering Section. He said that during the eight-year period since the valuation section of the former Natural Resources Subdivision began to function, slightly in excess of 240,000 cases have been disposed of by the engineers, or an average of approximately 30,000 cases per year. During 1926 in excess of 40,000 cases were disposed of with a materially reduced personnel, and during 1927 up to December 1, 40,509 cases were disposed of with a still further reduced personnel. On December 1, 1927, the mining subsection, which handles coal, metal and non-metal cases, had charged to it the following so-called open tax returns: For 1917, 4; 1918, 5; 1919, 5; 1920, 13; 1921, 13; 1922, 23. This involved only 25 tax-payers. For 1923 there are 114 cases before the Mining Subsection. Mr. Hatchett stated further that although the Mining Subsection handled from 10,000 to 15,000 cases annually, at the present time there are 1,749 cases charged to it for all years.

Status Of Work On Mining Cases In Engineering Section Shown To Be Practically Current—Procedure Shortened By Reorganization And Consolidations In Order To Speed Up Determination Of Tax Liability

Mr. McCrorken, after reviewing the enormous amount of work necessary in making valuations of all the mineral properties in the United States and also of many American-owned properties in Mexico, Canada and other foreign countries, said that the cases now involved in litigation in the coal, metal and nonmetal industries are less than 1 percent of the total. He said the analytic basis for valuation has proved peculiarly adaptable to metal properties as metals are sold on the market with exact quotations per pound of lead, zinc or copper, and per ounce of silver. Continuing, he said:

"This condition makes the profit per unit of production a matter of accuracy. This is not the case with other non-metallic products like coal, clay, graphite, or borax, when the market price is not so well established or the raw product is manufactured into many complex by-products before placing it on a market created by advertising, good will and an efficient sales force.

"An engineer who had specialized in one field becomes familiar with all the factors involved in such an appraisal—namely, the labor problem, competitive markets, existing transportation facilities and those capable of development, the geological occurrence of the mineral, and the features of a particular deposit affecting its value, such as continuity, depth and grade, and the metallurgical problems involved. All these and perhaps other factors must be given their proper weight. I believe that in partially or wholly developed districts where past operating records are available, such appraisals can be made a sound basis of valuation.

"It is believed that any element entering into a valuation can be given its proper mathematical significance and the maximum and minimum limits of each factor are now so well recognized by experienced engineers that analytic appraisals occasion but little difficulty.

"In conclusion, I would like to say that simplification of methods for administration of the income tax law is always desirable. Abstruse mathematical computations do not always convince you. We have been repeatedly told that formulae do not show the real facts. We realize that it expedites matters to convince taxpayers as to the fairness and correctness of results. However, the bureau's engineers have had foremost in their minds, uniformity of results and consistency in valuation to show the proper relations existing between various properties. Frequently the difficulty in coming to an agreement on a case arises because of lack of data.

"Sometimes it is not easy for a taxpayer to collect all details of his operations for years gone by. We realize this and desire to cooperate to the fullest extent with each taxpayer in every step toward the proper determination of the valuation of his property."

Mr. Gibson referred to the percentage of gross income basis provided in the 1926 act for depletion of oil and gas wells, and

stated: "The degree of simplification as between the 1926 and the 1924 act is likely to be overestimated, but there is no doubt that both filing and adminis-

trative work are lessened, particularly in the smaller cases, including nearly all of the lessor cases.

"Obviously

"Obviously the most difficult technical task in connection with any depletion problem is the estimation of recoverable reserves. In the case of the average lessor whose cost or March 1, 1913, value is negligible, or religible, or religible,



E. P. McCrorken

atively low, and in the case of some of the smaller lessees, if they do not compute depreciation on the production unit basis, it is not necessary to make an estimate of reserves in order to apply the provisions of the 1926 act, unless the property itself is sold or unless there is a net loss to be carried forward, in which cases it becomes necessary to ascertain what part of the depletion previously allowed at 27½ percent of gross income was properly to be regarded as depletion of capital invested.

"The discovery provision was designed to favor the individual or the corporation who took the risk of doing pioneer work in unproven areas, as distinguished from the investor type, who simply acquired properties already productive or practically assured of production. The present provision makes no such distinction. Consequently the justification advanced for the discovery provision, that it created an incentive for wildcatting, cannot be relied upon for the 27½ percent feature, in view of the fact that it can be enjoyed as well by a man who puts his money into the purchase of proven property as by the man who gambles in wildcat territory.

"However, there are offsets to the above argument. For example, the investment of the discoverer, in general, is less than the investment of one who acquired a proven property. Practically, then, the average investor in a proven property can have a depletion deduction, based upon cost, almost as great as, or greater than, the deduction which would be allowable at 27½ percent, while the discoverer, whose investment is comparatively small, may take the advantage of the percentage deduction.

The new provision has been observed to lead to many accounting tangles. Under the previous acts it was possible to build up a depletion reserve through annual additions of the depletion deductions, properly segregated as to return of capital invested and realized discovery appreciation. It does not appear possible to reflect the 27½ percent deductions similarly in taxpayer's accounts.

"There is often difficulty in ascertaining just what is the taxpayer's 'gross income from the property in the case of oil and gas wells.' Occasionally a lessor reports as gross income the receipts from the sale of all oil produced from a property, sets up as a deduction the amounts paid out as royalties, and computes depletion at 27½ percent of the gross receipts. This is erroneous, because the royalty income is not a part of the lessees gross income, and should not be reported as such, but the wording of the law is sometimes construed in this manner.

"In cases where the producer of oil or gas also transports or converts the product before selling it, he is tempted to claim as a depletion deduction 27½ percent of the gross receipts from the sale of the oil or gas after it is thus transported or converted. Even if such claim is not made it is difficult in this situation to determine what part of the gross receipts is attributable to income from the oil or gas well and what part is attributable to the cost of transportation or conversion. This is particularly important in the case of gas, not only where the gas is converted, on or near the property, into gasoline, before it is sold, but where it is transported several hundred miles in pipe lines and sold to consumers at retail.

"It will doubtless occur to you that many of the difficulties cited will have analogies in the case of mines.

"In so far as the actual monetary advantage of the provision to the industry or to the Government is concerned, that can, of course, be regulated at will in the fixing of the percentage."

Mr. Nichols presented a paper prepared by Mr. John Alden Grimes, formerly chief of the Mining Section, on the subject of depreciation studies undertaken by the Bureau of Internal Revenue with the voluntary cooperation of national organizations representing various industries or branches of industries. It was stated that the Commissioner of Internal Revenue and the taxpayers or associations of taxpayers in certain industries have agreed upon standard rates of depreciation as reasonable for major items of plant and equipment used in those particular industries, and the preparation and audit of the returns of such taxpayers has been greatly simplified and expedited by these agreements. The present studies will extend similar agreements to the taxpayers of other industries as rapidly and completely as possible. The scope of these studies embraces physical assets alone; information neither being requested nor desired with respect to the depreciation of patent rights, good will, leases, or other tangible or intangible assets not of a physical character.

Mr. Cardwell said that the turnover in personnel in the bureau has been distressingly high, affecting alike both the Government and the taxpayer. He stated that from October 1, 1913, to June 30, 1927, there were 11,934 appointments and 11,038 separations from

service in the Income Tax Unit. He presented a most interesting statistical picture of the work of the Income Tax Unit as follows:

"The problems which have confronted us in the verification and adjustment of returns filed have been extremely difficult and it is believed that we may well be pardoned the feeling of pride with which we look upon the results accomplished by the bureau in recent years. In this connection it is interesting to note that practically all the natural resources of our country have been valued by bureau valuation engineers during the comparatively brief period of five years and that more than 99 percent of all returns filed prior to 1924 have been closed by the bureau. For the period June 30, 1924, to June 30, 1927, the In-

Tax come Unit alone closed 6,289,-567 cases, 961/2 percent of which were closed without the mailing of deficiency let-ters. Of the remaining 31/2 percent closed the by unit during the same period by the issu-ance of deficiency letters. no appeal was taken from the action of the unit in the closing of 2 percent, or



W. T. Cardwell

125,760 cases; .9 percent, or 57,650 cases were closed by agreement after the deficiency letters were mailed and .6 percent, or 40,249 cases, closed were appealed to the United States Board of Tax Appeals. On October 14, 1927, only 3,898 cases were in process of audit for the years 1917 to 1920, inclusive, 1,604 of which were original audits. Priority is being given to all open returns for these back years and at the present time it is confidently believed that all of these cases will be closed and the work of the bureau will be current by December 31, 1928.

will be current by December 31, 1928.

"With respect to returns filed by taxpayers in the mining industry, we find
ourselves most concerned with those
filed by corporations. We have no desire
to distress you with a recitation of statistics, but it may be of interest to you
to know to what extent the corporations
of our country, particularly those corporations reporting in your own industry, are represented in the figures
which we have given you. Statistics for
the year 1926 are not yet available, but
for the years 1917 to 1925, inclusive, the
corporations of our country filed 3,320,504
returns, of which 150,491 were filed by
corporations in the mining industry. For
this same period, all corporations reporting had a total gross income of
\$73,197,668,810.00 and paid a total income tax of \$12,749,982,450.00. The
corporations reporting in your industry
had a total gross income of \$40,872,202,497.00, claimed as a deduction threefrom exhaustion, amortization and depletion amounting to \$4,616,732,380.00,
reported a total net income of
\$3,908,405,501.00 and paid a total income tax
of \$830,990,758.00."

IMPORTANT QUICKSILVER DEPOSITS

Important quicksilver deposits in the Pilot Mountains of western Nevada are described in a bulletin of the Geological Survey just issued as Bulletin 795-E. The deposits are situated in the heart of the Pilot Mountains, especially on the east and west flank of one of the main ridges, which has been named Cinnabar Mountain on account of the presence of cinnabar, the chief ore mineral of quicksilver. The nearest town is Mina, 12 miles away. Production from these mines began in 1915. All the ore mined to date has been of high grade, much of it with a content of over 10 percent of quicksilver and some of it even the pure ore mineral. Low-grade ore has not been ultilized, but is stated by the Geological Survey to be present in some abundance.

The rocks carrying the quicksilver ore are sandstone, conglomerate, limestone, and chert, and the mineral carrying the quicksilver is the sulphide, cinnabar, which is found along fractures or disseminated in the rock. In some mines there are large quantities of the sulphide of antimony, stibnite; others contain some lead, zinc, silver and gold.

WHAT THE TAXPAYER EX-PECTS IN THE NEW LAW

(Continued from page 32)

tion. And I think he does expect that sooner or later the law will be changed so as to be fairer to him in these respects.

I might greatly expand this discussion, and might add a considerable list of other particulars of how here and there the law might be made more fair. The provision for jeopardy assessment can be too greatly abused. The statute of limitations may be largely nullified by waivers which have to be given to avoid ill-considered assessments. But I can not hope to make this an exhaustive discussion of the entire subject. I can only hope I have said enough to show that the taxpayer has sufficient ground to complain of some unfairness in the present law, so that he may reasonably expect greater fairness in the next or a subsequent revenue act.

THE ZINC INDUSTRY AND THE SHERMAN LAW

(Continued from page 29)

the privilege, passing of the necessity, or for any other cause appearing sufficient.

This would be a radical step in our government. Those opposed to government by commission would see much danger shead.

The writer is not advocating this step. He is not presenting any persuasive arguments favoring or those opposing the thought, but is suggesting it for due and deliberate consideration, and feels that there might be many possibilities for good developing from it which would be of great aid to the zinc industry and of reab benefit to the country.

REPORTS ON THE MECHANIZATION SURVEY

Mechanical Loaders In Rock Work—Operations Described Taking Top, Bottom And Loading Out Roof Falls—Rapid Advancement And Large Tonnages Handled Under Various Operating Conditions

By G. B. SOUTHWARD

HE three reports on rock loading — K-10, K-11 and K-12 — s h o w mechanical loaders working in rock, overcoming natural conditions and lessening mining difficulties which would be very costly, if not prohibitive, when done by hand work. These three operations include taking top, bottom and loading roof falls and illustrate the three general classes of rock work which are usually encountered in bituminous coal mining.

Report K-10 shows the rock work being carried on as a regular part of the heading advancement and is worked continuously along with the coal loading. The other two reports describe operations which are in the nature of improvements or maintenance done some time after the coal mining operations have been completed.

The operation described in report K-10 is taking top and working under unusually severe difficulties due to the physical conditions encountered in the seam and in the rock strata. The coal seam has a thickness of 31/2 ft., and in order to provide additional height for clearance along the haulways and main air courses from 3 to 31/2 ft. of top rock is shot down and loaded out with a mechanical loader. Two entries are advanced together and the rock is taken in both entries each day. This necessitates moving loading equipment from one entry to the other during a working shift. Because it is necessary to have the clearance height close to the face of the entry, the rock work is advanced as the coal is mined, so it is not possible to shoot down a large quantity of material ahead of the loading machinery. This adds to the operating difficulties. A further difficulty is caused by the nature of the top rock which is a hard sandstone and very difficult to drill and shoot. The combination of all these troubles prevents an operating record here which will compare favorably with those shown on the other two reports. The real comparison, therefore, is with the results that would be expected by hand mining, and the management reports that under such conditions as they are now encountering, hand operation would probably be prohibitive.

The operation shown in report K-11 illustrates a use for mechanical loading that should have a fairly wide applica-

The advantages of mechanical loading over hand loading are well demonstrated in rock work and the labor-saving is perhaps a little more forcibly illustrated in rock handling than in coal. This is not because loading machines perform better or show a greater mechanical efficiency in rock work, as these same improvements are being effected to the same degree in coal loading. It is rather because of the heavy labor involved that the contrast between mechanical and hand effort becomes so apparent. In other words, rock work in a coal mine is always very costly and usually proceeds at a slow pace and with a low labor efficiency; therefore, the improvements effected by mechanization in the cost of the work, the rate of advancement and the labor efficiency become doubly impressive. The three operations described here serve to illustrate how mechanical loading is being applied to three general classes of rock work found in bituminous coal mining.

tion in coal mining. In this operation, bottom was taken in an air course in order to enlarge the cross-section area to an adequate size for carrying the ventilating air current. The rock work was done some time after the entry had been driven; consequently it was possible to shoot up the bottom well in advance of the rock loading and provide a continuous operation for the machinery during the working shift. The record made here whereby the cross-section area of an entry was doubled, and where this improvement was made over a distance of nearly 9,000 ft. in a ten-month period, should be very interesting to such mines as are now facing the problem of increasing their ventilating facilities.

Report K-12 describes a mechanical loader used in cleaning up a roof fall along an entry, and this operation is very interesting and impressive. There are few mines which have not suffered from the delays incidental to roof falls on a haulage way or main air course, and in addition to the cost of removing the material, the lost time while the work is going on adds an expense which is hard to calculate. In this operation described, a fall 200 ft. long and ranging in height from 5 to 14 ft. high above the coal was loaded out in mine cars in nine working shifts. There was a total of slightly over 400 cars of material, each car averaging over 2 tons of rock. This made an average of nearly 47 cars loaded during each working shift. This fall could only be approached at one end, and, consequently, if hand loading had been employed, there could have been but one crew working on it at one time. Since all of this material was loaded mechanically, no direct comparison with a hand-loading record can be made, but the management at this mine considers that cleaning up this fall in nine working shifts was a performance that they could not approach by hand work.

In machine loading, as in hand work, the drilling and shooting constitutes a major part of a rock operation where top or bottom is taken. This is shown in report K-11, where this labor constituted 48 percent of the entire rock loading operation. This proportion does not, of course, hold true in cleaning up falls, as generally only mudcapping is required. In

each of these operations described, the size to which the rock is broken is not limited by the capacity of the machine, but is determined by the size of the mine car end gate through which the material must pass at the slate dump outside, and the loading machine lifts pieces of rock much heavier than what two men would ordinarily handle. From this we can assume that although the drilling and shooting constitutes a large part of a mechanical loading operation, it undoubtedly involves considerably less labor per ton of rock loaded than would be required in hand mining.

Two direct savings by mechanical loading over hand loading are apparent. The first is that the rock is not shot and broken to such small sizes, and the second is that the men handle greater quantities of material with the machine than by hand.

These direct savings resulted in a very material cost reduction as reported by the mining companies. In figuring the amount of savings effected, extra items of work connected with the loading operation have been included as a part of the loading costs. These items are repairs and maintenance on machines, transportation of supplies and interest on the investment. In addition to the direct savings, the time saving due to the rapid rate at which the work was done gives an added value to these performances which is difficult to calculate.

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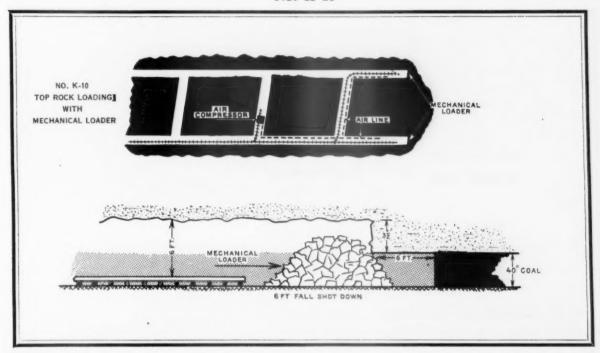
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No. K-10



PHYSICAL CONDITIONS: The seam has an average height of 40 ft., above which the top varies from a stratified sandy shale to heavy, massive sandstone. Immediately below the seam there is a soft clay which is underlaid by hard clay or slate. The seam is level, but at times is disturbed by rolls; this is particularly true in the section where the loader is now at work. Open lights.

CHARACTER OF ROCK WORK: In order to provide a clearance height of at least 6 ft. along the headings, 3½ ft. of top rock is taken down along the haulage ways, main air course and cross cuts

age ways, main air course and cross cuts and is loaded with a mechanical loader. and is loaded with a mechanical loader. The headings are driven 12 ft. wide, and all rock is loaded into mine cars and taken outside. In advancing the headings the coal is first mined and loaded out by hand, taking two 6-ft. cuts which advance the heading a distance of 12 ft. advance the heading a distance of 12 ft. The rock work follows the coal loading as a separate operation, and the top is shot down and loaded out by the mechanical loader, taking the rock clear up to the face of the heading before the next coal cuts are made. No timbering is required.

DRILLING AND SHOOTING: Where the top is a stratified sandy shale it can be broken down fairly easily and with much less difficulty than is encountered in the present operation where the rock is a massive sandstone. This sandstone is hard to drill and shoot and in an entry is hard to drill and shoot and in an entry 12 ft. wide a distance of 6 ft. has been found to be the most practicable limit for one fall. This length is brought down by two shots which are drilled 6 ft. deep by an air-driven jack-hammer. Five sticks of permissible dynamite are used in each shot and fired by electric caps. As there is not sufficient room for the drillers to work on top of the fall, the rock from the first shots is loaded out before the next series of drill holes is made. This method of shooting and loading necessitates considerable moving loading necessitates considerable moving

for the drilling equipment, but the jack-hammer is mounted on a truck which is run into the rock face, and the drill operates from the portable mounting. The jack-hammer is operated by compressed air furnished from an electric-driven compressor. The compressor is semiportable and is set from 100 to 400 ft. from the face of the heading and is moved forward periodically as the work advances. Air is taken to the drill by iron pipe lines with a flexible hose extension at the machine.

When the top is a massive sandstone the rock frequently comes down in pieces

the rock frequently comes down in pieces which are so large that they must be further broken by mud capping or by drilling and shooting. The size to which the rock must be broken is not limited by the handling capacity of the mechanical loader, but is determined by the endgate opening on the mine car.

MECHANICAL OPERATION: A pair of headings with the cross cuts is taken as a unit operating territory for one loading machine. The coal is loaded out by hand mining during the day shift and the mechanical loader works on the night shift only. The drilling crew usually comes on near the end of the day shift and starts as soon as one entry has been and starts as soon as one entry has been advanced 12 ft. and cleaned up so as to have one 6-ft. fall ready for the machine at the start of the night shift. The drill-

at the start of the night shift. The drilling and loading operations are performed twice in each entry during each shift, and while the machine is in loading one entry the drillers work in the other.

The loader discharges directly into mine cars of 1½-ton capacity which are placed at the machine by a gathering locomotive. A 6-ft. rock fall will usually load five mine cars, and these cars are shifted by the locomotive into a near-by shifted by the locomotive into a near-by breakthrough while the fall is being loaded. The loading machine works on track laid with 30-pound rail on 42-in. gauge. Bolted track sections made up in 6-ft. lengths are used to extend the

rail each night, and these sections are later replaced by permanent track. An electric blower with flexible tubing is used to ventilate the entries as they advance ahead of the air current at the last cross cut.

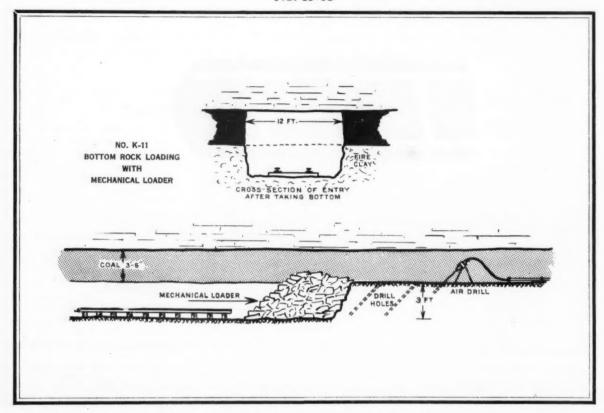
OPERATING CREW: The rock work is done by 4 men, 2 on the loading machine, consisting of an operator with a helper who runs the gathering locomotive, and 2 on the drilling crew. Both crews work on an 8-hour night shift, but some extra time is usually required for the drilling. The compressor is moved and the pipe line is extended by extra men on the day shift, and the permanent track is laid by the men employed for the regular mine maintenance.

The present operation is scheduled to make an advance of 12 ft. per day in each entry—a total of 24 ft. This schedule is subject to interruptions from various causes occurring during either the coal loading or the rock loading shift, and the average daily advancement now being made is about 20 linear ft.

EQUIPMENT: Each operation uses 1 mechanical loader, 1 compressor, 1 jack-hammer, 1 gathering locomotive and 1 ventilating blower with tubing.

CONCLUSION: The mechanical loader has been used for rock work at this mine for about three years, and during that period has loaded out approximately 20,000 linear ft. of entries. Under fair conditions a distance of 45 linear ft. per shift was made and at times 60 linear ft. The present average of 20 ft. is not considered satisfactory by the management, but they feel that this is due to the adverse conditions now being encountered. In the present work, as in the past the management reports that the past, the management reports that the rate of advancement has been more than double that which would be expected by hand loading and that the cost of the mechanical operation has been very materially under the hand rate.

No. K-11



PHYSICAL CONDITIONS: The seam has an average height of 3½ ft. with a top of slate and sandy shale. The bottom is a hard fire clay. The seam is generally level but has local rolls. Open lights. Entries rock dusted

Entries rock dusted.

CHARACTER OF ROCK WORK: At this operation the mechanical loader was used to take about 3 ft. of bottom rock in an entry which had been driven 12 ft. wide in the coal. This entry is used as a main air course and in order to increase its cross-section area to the required size, the bottom was taken for the full width of the heading and all rock was loaded into mine cars and hauled outside. The top had stood well and no timbering was required.

was required.

DRILLING AND SHOOTING: As the entry was already driven in the coal when the rock work was started it was possible to shoot up the bottom well in advance of the loading. This provided a continuous operation for the loading machine. The holes were drilled down from the floor of the entry and set at an angle so that a hole 6 ft. long reached a depth of 3½ ft. and lifted the bottom for an advance of about 4 ft. Three shots were made in a row across the 12-ft. heading, using permissible dynamite and electric firing. The rock was usually broken to a size satisfactory for loading but some mud capping was at times required.

times required.

The drilling was done by a jack-hammer operated with compressed air. The compressor was an electric driven semi-portable type and was kept within 500 ft. of the drilling operation. An iron pipe line was laid from the compressor with a flexible hose connection to the drill

MECHANICAL OPERATION: The loading operation was confined to the one entry and the machine worked there continuously, loading out as much as possible during each shift. On account of the fact that the air course was close to the main haulway, it was necessary to do the rock loading on the night shift so that the mine cars could be delivered and hauled without interfering with the regular mine operation during the day. As it was essential that the rock should be shot up well in advance of the mechanical loader, it was frequently necessary to do the drilling and shooting on both the day and the night shifts. During the day shift the track work and other operations preparatory for the night loading were done.

The loading machine works on track laid with steel on 36-in. gauge. Bolted track sections made up in 7½-ft, lengths were used to extend the rail during the loading operation. These were later replaced with permanent track of 30-pound steel. The loading machine discharged directly into mine cars placed one at a time by a gathering locomotive. These cars have an average capacity of about 1¾ tons of coal and a capacity of 2¼ tons when loaded with rock.

OPERATING CREW: The mechanical loader had a regular crew of 3 men, consisting of 1 operator, 1 helper and 1 man on the gathering locomotive. The regular drilling crew had two men for the drilling and shooting. The loading crew worked for one 8-hour shift each 24-hour period, but the drilling usually required two 8-hour shifts in order to keep ahead of the loading machine. In addition to the regular work extra men were required each day to extend the

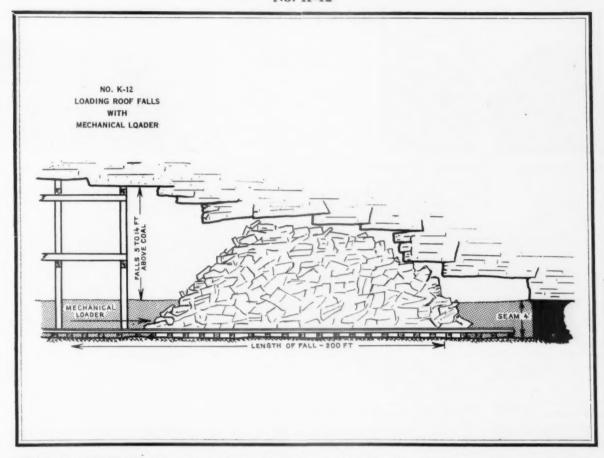
track, air lines, etc. Other labor incidental to this operation, such as handling material, repairs and maintenance on the equipment, whether performed inside the mine or outside at the shops was charged to and considered a part of the rock loading. The record kept during a 10 month's period for all work connected with the rock-loading operation showed the labor costs divided in the following proportions:

Loading											Percent					
																28
Drilling																44
Extras																28

During this 10-month period the loading machine took up bottom in 2,908 linear yards of entry. The amount of rock handled was 24,767 tons, an estimated solid yardage of 11,632 cu. yds. This operation made an average daily advance of about 40 linear feet. The rock-loading operation used 1 mechanical loader, 1 electric driven air compressor, 1 jack-hammer and 1 gathering locomotive.

CONCLUSION: Mechanical loaders have been used for rock loading at this mine for over a year for taking bottom, top and loading out roof falls. Complete cost records have been kent, which include a charge for interest and depreciation on the investment required, and the costs for the mechanical loading showed a very marked saving over the handloading rates. The management reports that the loading machines are entirely satisfactory for the service in which they have been employed, and in addition to the cost saving effected their rate of work is far in excess of what could be expected by the hand operation.

No. K-12



PHYSICAL CONDITIONS: The seam has a height of slightly under 4 ft. and above the coal the top is a stratified slate and shale. In certain sections of the mine the top does not stand well and roof falls occur which at times extend to a height of 15 ft. above the coal. The rock may fall for a few inches at a time, but more usually several feet of the strata will break down in a solid mass. The seam is approximately level. Open lights. Entries are rock dusted.

CHARACTER OF ROCK WORK: The

CHARACTER OF ROCK WORK: The rock work described in this operation consists of loading out roof falls along entries with a mechanical loader. The entries are driven about 12 ft. wide in the coal with from 2 to 3 ft. of top rock taken during the advance work, and where the top is bad the falls usually occur after the heading has stood for some time. The lengths of the falls vary, and the one described in this operation fell for a distance of 200 ft. and up to a height of from 5 to 14 ft. above the coal. This rock was loaded into mine cars by a mechanical loader and hauled outside.

a mechanical loader and hauled outside.

DRILLING AND SHOOTING: No shooting was necessary to bring down the top, as the loose or hanging rock was taken down by picks and bars. The fallen pieces required some further breaking, but no drilling was necessary, as this was done by hand sledging or mud capping, using an average of 1½ boxes of explosives each day. The mechanical loader was able to handle pieces much larger than could be loaded by

hand, though the size to which the rock was broken was limited by the end gate opening on the mine car and not by what the shovel would lift.

MECHANICAL OPERATION: The machine stayed in the entry operating continuously during the day shifts until the fall was entirely loaded out. Loose or hanging rock was pulled down in advance of the loader, and the timbering followed behind on the night shift, so as not to interfere with the loading operation. No track work was necessary, as the rail had already been laid before the fall occurred. This was of 30-pound steel on 36-in. gauge, and the loading machine operated from the track, discharging directly into mine cars. These had slightly over 2-ton capacity of rock and were placed by a gathering locomotive which served the loading machine and shifted single cars into a near-by breakthrough or room neck.

OPERATING CREW: The mechanical loader had a regular crew of 3 men, consisting of 1 operator, 1 car trimmer and 1 motorman on the gathering locomotive. This crew did a small amount of hand sledging when necessary during the loading shift, but ordinarily an additional crew of two men were employed for taking down loose slate, mud capping, and timbering. The heading had fallen for a distance of 200 linear ft. and to a height varying from 5 to 14 ft. This was loaded out by the crew as described above, working for nine 8-hour shifts, averaging slightly over 22 linear ft. of

advance per shift and loading a daily average of 47 mine cars.

TIMBERING: Because of the rapid rate at which the fall was cleaned up by the mechanical loader there was no tendency at this operation to attempt to support on timbers any loose or hanging rock which should have been taken down. The roof, however, above the fall was not always sound and some timbering was required after the fall had been cleaned up. The character of this timbering varied from posts and cross bars to square sets. These were generally set by a regular timber crew employed on the night shift.

EQUIPMENT: This operation used 1 loading machine and 1 gathering locomotive.

CONCLUSION: The record made in loading out the rock fall here described is not conclusive, as it represents only an operation of 9 days. However, the mechanical loader has been used at this mine on other falls and for other classes of rock work, and the management considers this particular record as fairly representative of what the shovel will do. The amount of rock loaded during each shift by the men employed is far in excess of what could be expected from a similar number of men on hand loading. A further advantage of the mechanical loading was in the rate of advancement made, and the management considers this operation very satisfactory and successful.

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PRACTICAL OPERATING MEN'S DEPARTMENT



COAL

NEWELL G. ALFORD Editor

Practical Operating Problems of the Coal Mining Industry



PROSPECTING STRIP COAL AREAS

By W. J. Borries, E. M.*

Investigation Of Successful Coal Strip Property Involves Principals Of Engineering And Prospecting And Geological Study Of Conditions Embodying Property — Procedure Advocated

HE success or failure of a coal strip operation may be laid responsible to the preliminary prospecting

and engineering which the property may or may not have received prior to equipping and operating. The writer has come in contact with a number of failures in the coal-stripping industry where failure may be attributed to insufficient prospecting and engineering of the coal areas under consideration, However, the lack of the above investigation is not altogether the cause for failure of operations, but when no investigations of the geologic and stratigraphic features of a property are taken into consideration the lack of such information might prove disastrous to the success of the enterprise. Therefore, the investigation of a successful coal strip property involves the principals of engineering and prospecting and the geological study of conditions embodying the property. The prospecting of coal strip areas is unlike prospecting of underground operations in that coal strip operations are not alone concerned with the thickness and quality of the coals to be extracted and marketed, but are additionally concerned with the physical characteristics of the overlying rock strata and soils, the structural features of the coal, and the surface topography.

The methods for prospecting coal strip areas vary with the character of the topography. Prospecting in prairie or flat countries similar to that of southeast Kansas, southwest Missouri, and certain parts of Illinois and Indiana are relatively simple problems as compared to the more rugged and hilly country of

certain sections of western Kentucky, Ohio, Pennsylvania, and Alabama. In a flat or prairie country the drill prospecting must be conducted by following the limiting contours wherein the strip shovel is expected to remove the overburden above the coal seam.

When prospecting either of the two characters of topography the question of the continuity of the coal seam and its structure relative to the dip of the coal must be taken into geological account. Both the core drill and the churn drill are customarily used for this drilling. The core drill, however, is particularly recommended when investigation is being conducted in an unknown coal area where more exact information is desired than is possible to be secured with the use of the churn drill. The writer has used the Diamond Core drill to advantage in a relatively new strip field for the preliminary prospecting work to secure accurate records of the overlying strata above the coal seam to be operated, as well as securing cores of the coal seam itself for close examination and chemical analysis. The core drill was followed with a churn drill to ascertain the limiting depth of the overburden above the coal seam, and for predetermining the possible outcrop of such coal seam. The cores of the overlying strata give the investigator an opportunity for a more complete study of the character of the materials directly overlying the coal seam from which information a better understanding may be derived in the selection of the mechanical equipment and the necessary explosives for shooting down the overburden material.

The following procedure is advocated for investigating

coal strip areas:

If the coal strip area is in a prairie country the engineering work involves, first, survey and platting of property lines and locating within these property lines drill holes which will thoroughly cross-section the property concerned. In such prairie country the spacing of drill holes should be about 400 ft. Surface elevations at location of drill holes and the top of the coal elevation reckoned from the log of the drill hole should be ascertained and indicated on the map. With this field prospecting and engineering work completed, structural contours reckoned at the top of the coal seam and surface contours may be then drawn on the property map. The difference in elevation between these contours indicate the height of the overburden at any particular point on the property. The structural contours will likewise show the rise and fall of the coal seam grades expected in haulage and the necessary locations for pumping plants and drainage systems. In a rugged country the above engineering and prospecting work is not so simple. Where coal strip areas are being investigated in a hilly or rugged country where the coal outcrops in certain portions on the property and other portions dip below the surface of the natural drainage of the property, more extensive engineering and prospecting is required to thoroughly catalog both the geological and physical features of the coal under consideration, and for fully determining the available tonnage which is to be expected through the course of operations in the life of the property investigated. In such investigation it is

^{*} General Manager, Dawson Daylight Coal Co., Dawson Springs, Ky.

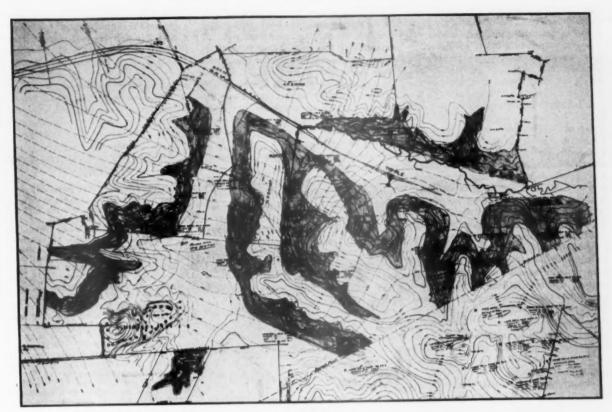


Fig. 1

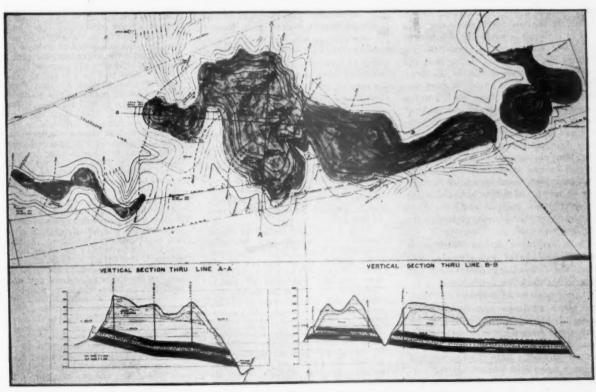


Fig. 2

best to carry the drill prospecting and engineering work simultaneously. Preferably a core drill should be employed. The engineer should locate his core-drill holes above the outcrop line in order to secure a full section of the rock strata which the strip shovel is expected to remove in the course of its operation to the limiting depth established by the size and type of equipment anticipated. The drill investigations should continue over the property to establish the outcrop of the coal seam, and for the limiting contour where the strip shovel is expected to remove overburden. The engineering work then consists of establishing this outcrop contour based on 10 ft, above top of coal level and estimating a contour 45 or 50 ft. above the top of the coal, depending upon the limiting depth to which the shovel is to strip. This engineering work should then be platted on the property map and the area between the outcrop contour and the limiting depth contour constitutes the area to be stripped, from which can be estimated the available coal tonnage.

Study of the geological conditions based on records of drill holes should then be platted and carefully studied in connection with the general map. This study of the geological characteristics of the strip coal area will determine whether or not certain areas may be operative and will determine the character of excavating machinery for the property. A study of this geological information may reveal that certain areas, although having a relatively shallow overburden, may consist of material in which the dipper type of shovel alone may be unable to dig its first box cut without caving in of the banks. Under such conditions the stripping shovel would be unable to move forward, and its path along such outcrop closed and a considerable amount of anticipated strip area becomes unoperative and is lost as to tonnage available. Very frequently coal strip areas which have been platted into broad hollows and ravines leading off from the main strip area have been found impossible to excavate on account of sliding banks although the overburden may be shallow. Thus calculated, recoverable coal platted on the map becomes void.

There are other factors which enter into the problem of coal stripping and which the preliminary prospecting and engineering work must determine. I refer to the question of drainage and haulage. Both drainage and the probable grades for haulage are determined as set forth above from the structural contours based on the elevations taken at the top of the coal seam. Both the haulage and drainage conditions concerning the certain coal strip area may or may not add a tremendous cost to the operations so as to render it uneconomical.

The prospecting and engineering work in connection with any coal strip operations should also determine the point of entrance of the strip shovel throughout the entire course in the extraction of the coals thereunder. Therefore, the path of the strip shovel must be figured out in advance the same as the entries and air courses in an underground operation should be planned in advance. The property map which embodies all the engineering and prospecting work will afford a means for determining the location of railroad and tipple.

The accompanying maps may serve to summarize the engineering and prospecting data which has been compiled on the property map of coal strip operations. Figure 1 represents a property which has been prospected in the manner above described. After survey was completed of the property lines a complete topographical survey was made of its surface. Core drills were then employed to investigate the strata overlying the coal seam and to secure a complete section of the coal to be operated. After the drilling was completed, elevations were secured at the top of the coal, from which structural contours were platted. In the accompanying map note that the contours formed a syncline through certain areas of the proposed strip area, but it was found later that certain portions of this presumably strip area could not be successfully operated with equipment at hand, and there was not sufficient tonnage to warrant the purchase of additional equipment necessary to excavate the material above the coal to be recovered. Figure 2 is the detailed investigation of another seam of strip coal with geological cross section of the seam. On this map all engineering and prospecting work has been platted to thoroughly catalog this strip area.

In Mr. Harold J. Sloman's article in our December issue, entitled "Rock Loading Operations at Two Pennsylvania Mines," the two following paragraphs were inadvertently omitted from the latter part of the article:

"For a working period of three months, in which the machine worked 70 days, 2,291 cars of rock were loaded, or an average of almost 33 cars of rock per working day (roughly 100 tons of rock). The total labor charges during the three-month period was \$1,764.28, an average of 77 cents per car, or roughly, 26 cents per ton of rock.

"The Myers-Whaley shoveling machines have proven their reliability and ruggedness of construction at both the No. 1 and No. 2 mines, as the operating officials report no mechanical trouble and the upkeep almost negligible."

The question of the selection of proper equipment will not be entered into in this article. It may be seen, therefore, that thorough engineering and prospecting, combined with a thorough geological study of any property, should be a means of determining whether it can be operated successfully and, if such is the case, to further give the physical information necessary for the selection of the proper equipment to operate the property.

CENTRALIZATION OF GOV-ERNMENT

(Continued from page 33)

That results in the passage of laws. There were introduced into the last Congress some 24,000 bills; 808 of those passed. And in all the state legislatures in the United States there were actually passed between twelve and thirteen thousand laws last year. Law mad in the United States. Everybody wants to introduce some sort of a measure in order to bring himself into popular favor, in order to bring notoriety to himself, for the personal element enters into this equation far more than you ever might imagine, far more than you ever would imagine if you had not been in a legislative body. Laws, laws. Now, gentle-men, this business of passing laws and legislation and creating boards and bureaus and commissions is up to you people, but you have got to organize to protect your interests. You labor from one year's end to the other in your busiand you have certain return. A good portion of that return you are com-pelled to pay over to the government in the shape of taxes. We are doing all that we can to reduce that burden. after all, that burden largely comes about because of the creation of these bureaus and commissions in the city of Washington, and that comes about because of the lack of coherent organization on the part of the people who are opposed to these things. And that is a political proposi-tion. I do not mean by that that the And that is a political proposigovernment is going to topple over and be destroyed. It will not be. I am not a pessimist. I think that these great, divine institutions of ours are to live on. But nevertheless eternal vigilance is the price of human liberty, and nevertheless if this great heritage coming to us from the fathers at such a tremendous sacrifice of blood and tears is to be preserved it must be preserved by people who think, who have their feet on the solid rock and their hands on their shoulders and are not afraid to speak out in defense of the fundamental principles that underly all governments and all life and all conduct and all character. For there are certain undeviating principles to which we must adhere if the future is to be saved. As long as we do adhere to them we shall keep on the highway and not get into the boos and swamps where all will be lost.

You represent a tremendous industry, one that should receive, as far as essential to preserve it, favoring and fostering care of the government. You will get on if they will let you alone. You will get on if they do not undertake to regulate you to death. Because if you hamper a man and you handicap him and you hobble him and you put him in leading strings, you destroy his initiative and you undertake to put him on the dead level by the regulatory acts of government, and that must not be done.

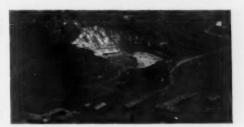
PRACTICAL OPERATING MEN'S DEPARTMENT



METALS

GUY N. BJORGE Editor

Practical Operating Problems of the Metal Mining Industry



N the Bunker Hill mine there are employed about 500 men, 93 percent of whom work on a straight day shift, which makes for safety, as it is a more normal life and men are more alert to danger than when changing shifts. Also men work in the same place every day and keep it in better

order, and are more familiar with conditions than when changing shifts. There is no other shift to disturb the work of a man so that a good check can be kept of the work of each man, to see that he does safe and good work.

There is no work in general on Sundays, which gives healthful rest to the men, so that they do better and safer work during the week.

Prohibition is also a safety factor.

The men in going on shift provide themselves with enough carbide for a shift's work, securing it outside of the mine and carrying it in metal containers, to prevent it getting wet and possibly starting fires in the mine.

The men go to work through a 2-mile tunnel, which is well lighted its entire length. The coaches that the men ride in on have high backs and the men sit facing each other along the long way of



SAFETY FIRST at the BUNKER HILL MINE

By H. M. CHILDS *

Result Of Safety First Application In Bunker Hill Mine And Plant Is Shown In Low Death And Accident Rate—A Record Of Four Years Eight Months Without Fatal Accident, With Average Of Five Hundred Shifts Without Fatal Accident Established—Rescue Equipment In Coeur d'Alene District One Of Most Complete In United States

the coaches, so that there is no danger of getting caught by passing timbers. The shift train is divided into four sections, with a motor to each section to minimize danger. The motors have strong headlights to thoroughly illumine the track. A crew of men is kept constantly on track work to keep it in a safe condition.

In the tunnel, where the ground is

Underground electric "blinker" Safety First sign. Bunker Hill Mine

> heavy, timbers are used, and in faulted areas the tunnel is concreted.

There is an electrical block system in this adit tunnel, showing a green light going in and a red light going out, so that collisions are prevented.

There is a large electric sign, "Safety First," that all the men have to pass under in going to

work, to remind them to be careful.

When the men leave the coaches they pass by the foreman, who looks them over to see that they are in fit condition to go to work.

The shaft stations are large, concreted, well lighted, and kept free from obstructions.

The skips are run empty from the top of the shaft to the bottom and back again to clear the shaft, before any men are allowed on the skip.

The men are lowered to work through two well-lighted and timbered inclined shafts, in long man skips with high guard rails on both sides, and cleats of large size, so that a man can sit on one side and rest his feet on another, and is

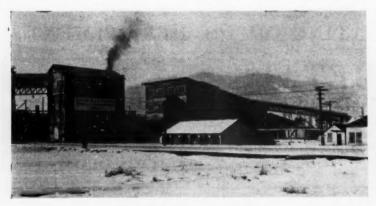
thus well braced.

An assistant foreman superintends the loading of the skip in an orderly way, and a shift boss is at each level to see that the men get off the skip in an orderly and safe manner. The same thing is done at the end of the shift. Skips are run in counter-balance.

The hoist, sheaves, cables, and skips are inspected daily by two mechanics to see

^{*} Engineering Staff, Bunker Hill & Sullivan Mining & Concentrating Co. In cooperation with M. J. Bottinelli, Electrical Engineer.

Paper presented through courtesy Stanly A. Easton, Vice President and Manager.



South Mill. Exterior gunited



Wardner Hospital, Bunker Hill Mine

that these are in shape to handle men.

The cables are changed for new ones every 11 months. All bolts used to connect the cable to the skip are of Norway

When lowering or hoisting men at the beginning and end of a shift, a device on the hoist is set, so that the skip can not be hoisted above the collar of the shaft. When this device is set a blue light at the hoist and another at the shaft station shows that the device is set and men are being handled.

There is an automatic cut off of electric power to the electric hoist when the skip comes near to the collar of the shaft, slowing the skip down and specially notifying the hoist engineer of the position of the skip, besides the usual indicator.

The electric hoists have Welsh automatic governors to prevent overwinding and a greater speed than 750 ft. per minute. If speed exceeds the above amount the electric power is automatically cut off and the brakes applied. The band brakes are operated by compressed air from the main line of the

mine. If this is off there is a small electric compressor that can be started to supply enough air to operate the brakes. There is also a dynamic braking to supplement the band brakes. All the hoist signal bells are electrical, and besides ringing the bell in the hoist room, flash a light on every station level to show that the system is working and give notice of the movements of the skip. A skip tender gives bell signals to move the skip.

All level stations are large, well lighted by electric lights, and kept free from all obstructions. Chains or timbers guard the sides of the shaft on all levels and at the top of the shaft. The top of the ore pocket is provided with timber gratings to prevent men falling into it.

From the level stations the men use carbide lamps to go to their place of work and use no candles, which reduces the fire danger. Men going to work into stope go the shortest way; when stope is started, go up from below from level through cribbed manways, and when stope is half way up, from the level above, through rock raises out of the stope, which are large, easier to go through, and safer than the manways. Manways are made of half round timbers with the round side up for good footing. When manways are over 40 degrees in pitch wooden ladders are placed in them, the steps of which are dapped an inch into the leg timbers and securely nailed.

All the large stopes use the squareset system, 8 to 12-in. posts left round,

and 8-in. by 10-in. squared caps and ties, and new sets are put in as soon as ground enough has been removed to place them, and no large open spaces are left, and all the men work under the protection of timber. The floors are of 2-in. plank, carefully laid and kept in good order, and nothing left underfoot to fall over.

Barring down of loose ground is done by experienced miners who keep under timber, and all shovelers are under the protection of timber all the time. New men are placed with experienced men and never work alone.

Cribbed chutes have gratings over them to prevent men falling into them, and only space large enough to pass ore is left open. Manways are covered with loose boards for the same reason. The temporary manways from floor to floor have small openings only large enough to pass through, and strong ladders are made by nailing 2-in. plank, 5 ft. long, a foot apart to the posts, and a cleat is nailed to the floor at the top of the manway to act as a hand hold. Cribbed

manways are spaced 50 ft. apart, and temporary manways where needed. In the large stopes there are several raises out of the stopes to the level above which give means of getting men in and out of the stope, for the passing of tools, timber, and waste into the stope, and for ventilation. Thus there are many ways of getting out of a stope in case of accident. Compressed-air warning whistles are placed at the bottom of these raises to give



Shift train showing coaches, Bunker Hill Mine, Kellogg, Idaho

warning of timbers being sent down the raise from the level above. The timber handler opens valve to air at top of the raise before he sends any timber down. Dangerous areas in the stope are fenced off to prevent accidents.

In working the large stopes the face of the stope is kept nearly vertical and at a sharp angle with the hanging wall, so that a cross section of a stope will show a sharp arch at the top, which prevents falls of ground and caving. No flat backs of ore are carried, as these are dangerous, due to falls of ground. Accidents from fall of ground are of rare occurrence.

The hanging wall is heavy, so that close filling with waste is the only safe way to support it. The timbers only act as temporary supports to prevent slabbing of the ore and protect the men. The waste filling is run into the stopes from the level above and some water added, making the waste of the consistency of fresh, wet concrete, which settles well and packs hard and allows a minimum of settling, so that caves in the stope are very rare.

Only on the long adit tunnel are trolley motors used. On the other levels storage-battery motors are used for hauling ore to the shaft and supplies to the stopes, so that the danger of electric shock or electrocution is removed.

First-aid rooms, supplied with firstaid cabinets and splints, are maintained on every level, and at the top of the main shaft stretchers, first - aid cabinets, splints, blankets, and pillows are kept. An injured man is put on an electric motor and taken to the portal of the tunnel, where an ambulance truck is waiting to take him to the hospital, where a staff of doctors and trained nurses are maintained.



Electric sign under which all men pass in going to work. At this point the tunnel branches, one branch going to Bunker Hill Mine and one to the Sierra . Nevada Mine

Safety in the mine is promoted by very close superintendence of all work done by the superintendent, foreman, and two assistant foremen, who inspect every working place once or more times a day. There is also a shift boss in every stope. The manager also makes a weekly inspection of all work and conditions in the mine.

Only enough of 35 percent strength dynamite is taken into the mine at 1 p. m. for that day's use, and this is stored on the various levels in dry and isolated rooms, which are electrically lighted, and where no open lights are allowed. Danger signs are placed conspicuously at the entrance of these rooms warning of dynamite storage. Caps and fuse are kept in widely separated places.

No stemming of holes is used when loading holes for blasting, so that in case of misfire another primer can be placed on top of the old charge of dynamite and the hole blasted.

In the stopes when blasting time comes all the shovelers and others leave the stope before the miners blast their holes.

A fire warning or "all out" signal is given by adding a stench compound to the compressed - air line on the adit level, which in a short time reaches all of the working faces, and the men go at once to the shaft or other places of egress.

Danger signs are placed on the adit level where there is danger of coming in contact with the trolley wire, warning of this danger. Placards are posted in conspicuous places warning of fire hazard. A geophone is kept on hand in case of men being entrapped in any working. Accurate and up-to-date maps of all the workings are kept in the main office, so that in case of accidents intelligent use can be made of them in rescue work.

MINE RESCUE WORK

(Extracts from a paper by K. T. Sparks, in charge of the mine rescue car for the district)

"All of the large mines of the district are banded together in an organization known as the Coeur d'Alene Mine Own-

ers' Association, and the mines contribute to a general fund based on the output of each mine.

"The rescue equipment of the Coeur d'Alene district forms one of the most complete installations in the United States; no expense has been spared to make it complete, and represents an investment of about \$25,000. This figure includes the railway rescue car, purchased from the Bureau of Mines. its equipment and



Fire fighting helmet crew, Bunker Hill Mine



Underground storage battery locomotive, Mr. K. J. Botinelli at right.



Safety First bulletin board, outside of change building,
Runker Hill Mine

the rescue stations at the mines. The rescue car is kept on a spur track, common to the two railroads of the district, and an engine is available at all times to take the car to the scene of the mine fire.

"The rescue car has 14 sets of Paul two-hour oxygen breathing apparatus with all the accessories, such as oxygen tanks, oxygen bottles, regeneration cans, tools, etc. High-pressure oxygen pumps, both hand and power operated, are provided for filling small oxygen tanks on the machines from storage cylinders.

"There are also smaller machines for %-hour periods for rescue work. Also self-rescuers are kept for short trips in smoky areas where there is plenty of oxygen.

"Gas-testing apparatus and Orsat apparatus for analyzing mine air and safety lamps are carried.

"Resuscitating devices consisting of enhalators for administering pure oxygen, or oxygen, carbon dioxide, and methane are kept.

"Each fire fighter is provided with a battery lamp of searchlight type that will throw a beam of light 500 ft.

"Large portable searchlights, to be connected to mine electric circuits, are also kept. Life lines of light rope are kept on a reel so that fire fighters can take line to fire from a fresh-air base and be able to find their way back again. Fire hose is kept that can be fitted to the standard mine water lines.

"In case of a large mine fire in the district, all of the rescue equipment from the different mines and that kept on the rescue car can be assembled at one place, giving about 90 sets of apparatus and accessories."

The Bunker Hill & Sullivan M. & C. Co. has a mine rescue station near to the portal of the main adit tunnel, where the fire helmets and accessories are stored, and the building is used for rescue work alone. They have 12 sets of apparatus and a complete assortment of

accessories. Six of these are kept in the outside rescue station and six sets at the main hoisting station of the mine.

A crew of helmet men is kept in training, in groups of five, and these are given instruction once a week by Mr. K. T. Sparks, who has charge of the rescue car for the district. First-aid work and first-aid teams have been organized among the different departments of the company, and a large number of men have been trained in this work.

The Bureau of Mines, in conjunction with the local mine rescue man, Mr. Sparks, give instruction classes in first-aid work to the general public, free, at intervals during the year.

Safety First on the Surface Plant

By M. J. Bottinelli, Electrical Department

The company does not ask the journeyman to work on live wires above 550



Underground powder magazine with Safety First sign

volts unless it is absolutely necessary, and then two men are usually together, one doing the work and the other assisting and seeing that he does not come in contact with other wires or guy lines. The linemen are furnished with the Marshall linemen's shield, which is believed to be the last word in the protective devices.

While workmen are repairing circuits, which are cut off from the source of power, the switch, or circuit-opening device, is tagged with a sign reading, "Danger, men on line." Also the circuit-opening device is tagged by the operator, stating the name of the one who had the circuit opened, time and for what purpose, time of closing, and by whom, etc. Notices are placed throughout the plant reading, "All wires are dangerous." "Do not handle wires; leave them for the electrician." "High voltage. Live wire," etc.

For men working around the power house the company furnishes heavy rubber matting for protection while working on live buss bars, etc. It has now become a general practice that safety switches are used ahead of motor-starting equipment, such as hand-starting compensators, magnetic switches, etc., which are opened by the men doing repair work on starting equipment.

A large sign is placed at the entrance to where the current transformers, bus bars, oil circuit breakers, disconnect switches, etc., reading "Think."

POWER PLANT

In the central power plant all the electric switches that control the power used in the mine and plant are located.

All the switch handles are of hard rubber, and the operator stands on a rubber mat to prevent electric shock when handling switches.

All the switches have automatic throw out when there is a short circuit on the line. The oil switch is located under the floor where the operator stands, and a long bar operates the switch so that there is no danger of electric burn by flash of electrical contact. The newest switches have relay set, and any defect on the line throws out the switch. If the circuit breakers throw out twice in succession the electricians are notified and the line is investigated.

All the high-tension lines from the district transformer station are gathered together and come to the power plant through an underground tunnel or conduit to prevent high-tension wires being in the way in case of fire around the plant.

All the electric air compressors have safety valves set at the working pressure so that there is no danger of exceeding this pressure. The steam turbine generators have automatic governors to shut off the steam if turbine exceeds speed set.

All the water-tube boilers have safety valves set at the working pressure, and water gauges show the water level in the boilers. The usual safety placards and signs are posted where needed.

SAWMILL

The sawmill that cuts the timbers for use in the mine has wire screen guards on all saws to prevent slivers or broken saw teeth from injuring the sawyer. All cut-off saws have metal guards over the upper half of the saw. Rubber mats are used to stand on to operate electric switches, and stop push buttons are placed where they can be reached easily in case of accident without going to the switch.

In the square-set framing machine for cutting the tenons on the posts all the oil cups are piped to the bearings, so that the oiler is not near to the saws. All moving belts are fenced in around machines,

In unloading logs from the railway flat cars, wire cutters with 12-ft. handles are used to cut the wire holding the load of logs, so that the men are clear of falling logs.

MACHINE SHOP

Machinists on lathe work are supplied with goggles to protect the eyes. Grinding machines have an adjustable glass shield to protect the operator from flying particles. In the welding shop the operators wear masks and shields are placed around them to prevent eye injury to other people in the shop.

TOOL SHOP

The sharpening machines have a locking device on the hand throttle to prevent accidental starting of the machine. A small steel sylinder about 3 in. long is placed between the hammer and the block to prevent accidental dropping of the hammer.

YARD

The company has a membership in the National Safety Council, and safety first



Switch to cut off power, placed close to rope drive pulley of motor in West Mill. Broken rope strand hits switch and power is cut off before damage is done. Device of M. J. Bottinelli

placards are sent out each week. These are posted outside the change building on a bulletin board where the men can see them.

The yard trolley wires are 10 ft. from the ground, and all yard motors have a warning gong on them. Dangerous turns and street crossings have large diamondshaped signs placed near them to warn of danger.

On the main line to the tunnel there is an electric block system to prevent collisions of motors. Safety chains are used between trucks and to motor to prevent trucks from breaking away on steep grades.



Electric "Blinker" Safety First Sign

All scaffolding is of extra-heavy type when used on buildings and gunite work. Close supervision of the work is kept by a superintendent, foreman, and assistant foreman

MILLS

On motor-starting compensators there is a stop push button, so that the motors can be stopped more quickly in case of accident.

The main-line drive rope near to the motor has a cross-arm switch to stop motor if any loose strand of rope hits the arm. This stops the motor before the rope breaks.

All dangerous belts are fenced in. The operators wear close-fitting work clothes with no loose ends to get caught in the machinery. In the mill blacksmith shop the grinding machines are provided with guards, and goggles are supplied.

SMELTER

In the smelter about 220 men are employed, and the labor turnover is rather small, and the men are well trained in their work. New men are placed with experienced men, and accidents are thus avoided. The supervision is very thorough, and accidents are guarded against all the time.

In the sampling mill all the belts on the floor levels are fenced in. All the electric switches are numbered, and the name of the machinery operated by the motor is printed on the switch, so that no mistakes are made in starting the machinery. Stop push buttons are located in convenient places where operator can reach them, so that machinery can be stopped quickly in case of accident. Danger signs are posted where needed.

MACHINE SHOP

In this department all the grinders are inclosed with guards over the wheels. Goggles are supplied to the operators. The sheet-iron cutting machines have all possible parts inclosed, and the power levers are automatically locked when the machine is not in use. The welders use masks and are surrounded with metal shields to protect the eyes of others in the same building. Safety-first signs are displayed in various places around the shop.

TREATER PLANT

In the Cottrell treater, power pumps are inclosed to cover the gears. On the top of the flues wooden walks are built, so that in case of collapse of the flue in spots men will not fall into the opening. The switches for section treaters and all metal parts are grounded to prevent electric shock. The high-tension static wires are screened off overhead by heavy wire screen. In cleaning sections of the treater all current is turned off and switches are locked. Doors to the section are locked, but when opened chains to

the switch below are disconnected, so that no current can reach man at work in the treater. Also a hanging chain with handle prevents entry until placed on a ground wire. Thus there are three safety guards to the man working on the section.

In the generator room all the hightension static machines are screened off with heavy wire screen.

ROASTING DEPARTMENT

Here the suction motors and fans are set up on high pillars and out of the way. Revolving mixing trommels are covered and all gearing and belts on the roasters are guarded.

BLOWER HOUSE

Here all switches have rubber mats placed in front of them for the operator to stand on when working switches. All the entrances to the back of switchboards, transformers, etc., have a large sign, "Think."

CHARGING FLOOR

The openings to the furnaces, where the charge is dumped, have drop doors to cover them when charge is not being placed. On the tap floor the operators are provided with goggles and have metal shields to work behind when tapping off slag, to prevent hot slag from injuring them. Men breaking matte wear goggles.

The electric traveling crane has a warning gong and is not allowed to carry loads over men or lead kettles.

The power saw for sampling of lead bars is inclosed with a metal cover, and gears are guarded. The skimmers on the lead-casting wheel wear goggles.

In the refinery the acid workers wear rubber gloves, shoes, and aprons.

In the coal-pulverizing plant there is a large exhaust fan set in the wall of the building to take out coal dust in the air and prevent explosions. There are explosion doors in the roof, so that in case of an explosion the force of the explosion will be taken care of by the doors, and the wall of the building will not be injured. No smoking is allowed in this department.

In the yard all railway cars are blocked by wooden wedges to prevent cars getting away, from faulty brakes, and injuring men and property. When men are working in bins a red sign is placed over bin warning of men in bin.

The trolley line for use in slag dumping is over 10 ft. above the track. The slag pot has an electrical dumping device, operated from the motor. Safety chains are added, besides the draw bar from the slag pot to the motor. The motor is housed in and has heavy glass windows to protect the motorman from slag. The slag-pot truck can be clamped to the rails when dumping slag on a curve, to prevent upsetting of the slag pot.

The yard crane can also be clamped to the rails to insure its staying in one place when loading material to or from railway cars.

There are first-aid cabinets in all the departments.

In the Tainton lead plant belts are fenced off where dangerous.

In the lead-melting furnace, where wet lead precipitate is melted, the doors of the furnace are large and not latched, so that in case of steam explosions the doors swing open and no damage is done. Men working around the machines that carry acid wear rubber clothing and gloves.

In the North Mill experimental zinc plant the belts and gears are well fenced off or covered. The grinding machines have a heavy glass shield to protect the operator. All the electrical equipment is well insulated to protect against shock, and switches are of standard pattern.

In working around acid solutions the men wear rubber shoes, gloves, and aprons. First-aid cabinets are kept in the office.

The result of safety-first application in the Bunker Hill mine and plant is shown in the low death and accident rate.

In the mine a record of four years and eight months without a fatal accident has been made, and the average is 500 shifts without a fatal accident. The records show that the largest number of the nonfatal accidents in the mine are due to timber or to the hand tools that the men are working with. Next comes injury from rock or ore while loading at the face or chute. Most of these are classed as slight.

Next comes haulage, where most of the injuries are classed as slight, and the rest are scattered over various causes.

Around the plant and mills accidents are for the most part due to hand tools the men are working with, and the others are scattered over various causes.

In the smelter, hand tools head the list of non-fatal accidents, with haulage as next.

The utmost care is exercised in all departments, especially in the mine, to prevent accidents of any description. Special credit should be given to the mine superintendent, Mr. McDougall, who is noted for the observance of safety-first practices and working the ground in a safe manner.

Secretary of Interior Work has reported to Congress that of the \$8,500,000 provided for payment of war mineral claims, \$965,416 remains unexpended. Claimants were awarded \$7,018,879 and expenses of administration have totaled \$528,964. The courts have dismissed two cases brought under the act and six other cases are pending.

AMERICAN ASSOCIATION FOR LABOR LEGISLATION MEETS

The American Association for Labor Legislation held its 21st annual meeting at the Hotel Washington, Washington, D. C., December 27-30, 1927. Among the topics taken up for discussion were: "How Does Uncle Sam Treat His Workers?", "Newer Interpretations of the Sherman Act," "Labor Legislation and the Business Mind," "Ideals and Idealism in Taxation." "The High Cost of Being Sick," "The Burden of Old Age Dependency," "Newer Developments in Social Insurance," "Industrial Efficiency and Social Welfare." The speakers included many important individuals: Walter Gordon Merritt, representing the League for Industrial Rights; C. M. Joseph, of the New School for Social Research; Sam A. Lewisohn, representing the American Association for Labor Legislation: Thomas Sewall Adams, representing American Economic Association; Irving Fisher, of Yale University; Woodriff Thomas, Federal Reserve Board, and many others of equal promi-

THE ZINC INDUSTRY IN 1927

(Continued from page 36)

zinc by 1928 at the rate of 15,000 to 20,000 tons per year.

In South America a situation somewhat similar to that in western North America exists, and selective flotation is just beginning to be applied to the recovery of zinc from lead-silver-zinc ores. The concentrates have been exported to Europe, but investigations are now being made in the Cerro de Pasco region of Peru looking toward the installation of an electrolytic zinc plant.

In the Altai mountains of southwestern Siberia there are very large deposits of complex lead-zinc ores; and in many other of the less accessible parts of the world there are probably considerable quantities of zinc which can be put on the market if conditions warrant. The undeveloped possibilities outside of the United States are doubtless very much greater than those within this country.

The zinc smelting industry of Europe, which faced a shortage of ore supplies a few years ago, now appears to be abundantly supplied. The European smelters, together with those of North America, at present produce about 95 percent of the world's zinc metal, but the tendency toward construction of electrolytic plants closer to the mines, noted above, will probably result in considerable decentralization of the industry.

The belief has been expressed by well-informed persons that the domestic zinc industry of the United States will find it increasingly difficult to continue exports of either zinc ore or zinc metal, which are already a minor factor in the situation. Unless there be an unexpectedly great increase in world consumption, this belief would seem to be borne out by the facts which have been presented above. It also appears strongly evident that there is likely to be increasing need, on the part of our domestic zinc industry, of the continued protection afforded by our present tariff.





NEWS OF THE MINING FIELD

Colorado Mining Association and Colorado Chapter, American Mining Congress to Meet January 19 and 20

The official call for the annual meeting of the Colorado Mining Association and the Colorado Chapter of the American Mining Congress has been issued, and plans and final arrangements for the big meeting which is to be held in Denver, January 19 and 20, are rapidly taking form in line with the established custom of making each convention a little better than the one that preceded it. J. O. A. Carper again heads the committee having charge of the annual "Sowbelly Dinner," which has become an attractive feature of these annual meetings. Sessions will be held in the Albany Hotel.

Dates Set For Northwest Mining Convention

The thirty-third annual convention of the Northwest Mining Association will be held in Spokane, Wash., the week of February 27 to March 3, 1928, according to a decision made recently by the board of directors and special convention committees.

The special committees appointed by President Charles H. Goodsell are:

Program—L. K. Armstrong, Spokane; Dean F. A. Thomson, Moscow, Idaho; Dean A. E. Drucker, Pullman, Wash.

Ore Display—Ralston McCaig, Spokane; J. W. Mulholland, Nelson; Matt Baumgartner, Spokane.

Finance—W. S. Hawley and Conrad Wolfe.

Publicity—Storey Buck, C. M. Anderson, Elden Chapman, Spokane.

Entertainment—Robert T. Banks, Tom Murray and Russel F. Collins.

New Operations of Cleveland-Cliffs

Within the next month or so the Cleveland-Cliffs Iron Co. expects to start hoisting iron ore which is already broken in the stopes of the Gardner-Mackinaw iron property on the east end of the Marquette iron range of Michigan. The ore is a hard hematite and is mined by the room and pillar system. No timbering is necessary in extracting the ore.

The company is also planning to mine

ore from the old Tilden property which lies south of Ishpeming. The operation will be open pit, but shipments are not expected to start until 1929.

The company has recently stopped work at the Boeing mine near Hibbing, Minn., and will surrender the lease. The mine has produced a total of 2,711,819 tons of iron ore.

United Verde Will Market Its Own Copper

After the 1st of January the United Verde Copper Company will sell copper produced at its Arizona mines on its own account instead of through the United States Smelting, Refining & Mining Company, which has handled sales in the past. H. De Witt Smith, formerly general superintendent of mines, will be in charge of the sales office at 111 Broadway, New York.

Hecla Unwaters Tiger-Poorman Mine

The Hecla Mining Company, Wallace, Idaho, has recently started unwatering the Tiger-Poorman mine, abandoned for almost 20 years. The company bought the property from Federal Mining & Smelting in 1920. There is much unexplored ground on the property, and it is supposed that there was a large amount of zinc in the ore when operations were suspended, which made it unprofitable at that time to work. This property will probably be added to the list of Coeur d'Alene producers later in the year.

PHELPS DODGE PLANS COPPER REFINERY IN WEST

Announcement has been made by Walter Douglas, president of the Phelps Dodge Corporation, that the corporation is considering plans for the erection of a copper refinery in the Southwest. The site for the refinery has not yet been selected, and it will be some months before any definite announcement can be made. Locations now being considered are El Paso, Houston, New Orleans and Los Angeles.

Carson Appeals Patent Suit

George C. Carson, claimant of a patented process for feeding reverberatory furnaces, has filed an appeal in the United States Circuit Court of Appeals at San Francisco, from the decision of Federal Judge Bourquin of the District court in Montana, in which it was held that the Anaconda Copper Mining Co. had not infringed on the patents held by Carson.

Wyandott Copper Properties Sold

The holdings of the Wyandott Copper Co. in Houghton County, Mich., consisting of 1,065 acres of land, mineral rights, timber, shafts, buildings, and equipment, have been purchased at public auction by F. W. Nichols, of Houghton. There are several shafts on the property, a steam plant with hoist good for 1,000 ft. and compressors of 12 drills aggregate capacity.

Due to excessive costs and lack of funds, operations were suspended at the mine in the spring of 1918.

New Working Shaft at Eighty-Five Mine

A new working shaft is to be sunk at the Calumet and Arizona Mining Company's Eighty-five mine at Lordsburg, N. Mex. The proposed new shaft will give better ventilation and greater speed in opening work. It will probably be sunk at the west end of the property, where promising values are expected.

May Develop Former Copper Queen Extension Properties at Bisbee

The feasibility of developing the mining claims formerly belonging to the Copper Queen Extension Mining Company, near Bisbee, Ariz., is being investigated by John J. Higgins, representing the Higgins estate, Los Angeles, which purchased the 22 patented claims at sheriff's sale for \$100,000. The property is located 2,500 ft. directly south of the Shattuck shaft and has been developed to a depth of 600 ft. In the event that it is definitely decided to form a company with a view to developing the property further, at least \$200,000 is expected to be spent on a thorough exploration. It is possible that a new shaft will be sunk.

United Verde Erecting Foundry

The United Verde Copper Company is adding a completely equipped foundry to its plant at Clarkdale, Ariz. This will be so equipped as to permit the casting in its own plant of all steel castings required in the mill, smelter and mine.

Phelps Dodge Connects C. & C. and Warren Shafts

The Calumet and Cochise shaft of the Fhelps Dodge Corporation, Copper Queen Branch, at Bisbee, has been connected with the Warren shaft by means of a half-mile drift. Connection was made at the 1,665 level of the Warren shaft, the drift being on a slight incline to make possible the handling of drainage through the pumping facilities of the C. & C. shaft. The Warren shaft is being sunk to the 2,500 level.

Selective Flotation Plant in Southern Arizona

A selective flotation mill is to be erected at Sahuarita, Ariz., by the Minerals and Metals Corporation of Los Angeles, according to F. L. Dean, company representative. The first unit of the mill is being fabricated by the Southwest Engineering Corporation and will have a capacity of about 1,000 tons a month. The plant will be equipped with a two-stage flotation for the selective treatment of complex-lead-zinc ores. This will provide a means of treatment for the ores from many of the smaller properties in the vicinity. The mill will be of structural steel throughout.

Iron Cap Mine Suspends Operation

The Iron Cap Copper Company has announced that operation of its Iron Cap mine at Copper Hill, Ariz., will be indefinitely suspended. The business of the company will be continued by the acquisition of other properties. It has for some time owned and operated the Christmas mine at Christmas, Ariz., and has also obtained control of the Mineral Products Company of North Carolina. The latter company is a producer of feldspar.

Production Begins at Argentina Consolidated

The new plant of the Argentina Consolidated Mining Company, Yellow Pine District, Nev., including a 50-ton mill, power plant and tramway has been placed in operation and ore production begun. Development and plant construction have been under way for the past year and a half. The management reports sufficient ore to assure steady production.

TRAINS SOON RUNNING IN MOFFAT TUNNEL

It is now expected that trains will be running through the Moffat Tunnel, between Denver and Salt Lake, some time early in 1928. The railroad bore has just recently been completed and track is being laid. The tunnel is 6.1 miles long and has cost about \$18,000,000. It will open a rich mineral country, permit the running of trains regularly through the winter and bring Salt Lake 173 miles nearer Denver.

Nevada Hills Company to Operate Virginia Mine

The Nevada Hills Mining Company, which formerly operated the Fairview Eagle mine at Fairview, Nev., has taken over the Virginia mine three miles south of Coulterville, Mariposa County, Calif. The Virginia mine was closed in 1923, after several years of continuous operation, by the Virginia-Belmont Mining Company.

Repairs on the power line and plant are practically complete and operation will soon begin. Because of improvements in milling it is expected that costs can be reduced which will allow a profit on lower grade ore than was possible in the previous operation.



D. W. Brunton

As we go to press there comes word of the death of D. W. Brunton, Denver, Colo., internationally known mining engineer and former president of the American Mining Congress. Mr. Brunton's biography will appear in our February issue.

Idaho-Maryland to Extend Operations

The Idaho-Maryland Consolidated Mines, Inc., which now controls the Idaho-Maryland and Brunswick mines near Grass Valley, Calif., has announced plans for increased work on the two properties. This will include added development and an increase in the capacity of the mill.

The company has been granted authority by the State Corporation Commission to sell 425,000 shares of preferred stock and 850,000 shares of common stock, in units at one dollar per unit.

Plan Operation of Old California Mine

The Butte Mining Company, Hawthorne, Nev., successor to the Butte Divide Mining Company, has taken over the Defender gold mine in the Volcano district, 16 miles east of Jackson, Calif., from L. L. Patrick, former Goldfield operator, who will have charge of the development of the property. G. A. McGinnis, secretary of the company, states that the Defender is an old producer and there are indications that gold was mined there by Mexicans at the time of the early invasion of Nevada and California.

Comstock Silver Company Closes Mill

The Comstock Silver Mining Company has closed down its small concentrator at Stockton Hill, near Kingman, Ariz., to await better prices for lead and zinc. Development work in the mines will continue through the winter.

Northern Mine Sold to Childress

Sale of the Northern mine of the Commonwealth Mining Company, in western Kansas, to the Childress Lead & Zinc Company was consummated December 24, Frank Childress, president of the latter company, has announced. The price paid for the mine, which is located near Treece, Kans., is understood to have been \$100,000. The Commonwealth paid \$125,000 for the property in 1925.

The mine produces around 150 tons of concentrates a week, considerable of which is lead.

Leopard Mill Operating Soon

The Leopard mill of the Velie Mines Corporation, located west of Baxter Springs, should be ready for operation about the middle of January, according to Frank E. Weeks, general manager. The concentrator is of steel construction.

Three shafts have been sunk on the lease and the ore bodies opened in each. A rich run of ore has been developed on the north part of the 80 acres. This ore body is of a shallower depth than the ores developed on the southern end of the lease.

Montana Manganese Plant Nearing Completion

Several carloads of equipment have arrived and are being installed to complete the first unit of the \$400,000 plant being erected by the Domestic Manganese & Development Company, at Butte, Mont. The machinery is being installed under the direction of John H. Cole, president of the company, and R. F. Feind, engineer of the Allis-Chalmers Manufacturing Company. The plant is expected to turn out its first product about the middle of January. It will have an initial capacity of 300 tons.

Pink manganese ore will be received from the railroad cars and transported to a trestle 45 ft. high. Cars will be dumped into two bins, each having a capacity of 500 tons. From these bins the ore will be conveyed by belt and elevator to bins which feed the rotary kilns.

Contracts have been entered into by the company for the delivery of 875,000 tons of manganese ore during the next five years, which will give a finished product of 675,000 tons, the ores running from 50 to 66 percent metallic manganese.

Sheldon Mining Co. Deepening Shaft

At its mine at Walker, Yavapai County, Ariz., the Sheldon Mining Company will sink its three-compartment shaft, now being enlarged, from the 850

ARIZONA CHAPTER ELECTS NEW OFFICERS—TO SPONSOR GREENWAY FIELD DAY

The annual business meeting of the Arizona Chapter of the American Mining Congress was held at Phoenix on December 12. The following officers were elected:

H. A. Clark, governor; C. A. Smith, first vice governor; T. H. O'Brien, second vice governor; W. C. Weiss, treasurer; W. B. Gohring, secretary.

The following directors were elected: Frank Ayer, I. H. Barkdoll, P. G. Beckett, W. S. Boyd, H. A. Clark, M. Curley, W. V. DeCamp, J. P. Hodgson, Wm. Koerner, J. Kruttschnitt, F. W. Maclennan, T. O. McGrath, C. A. Smith, R. E. Tally and F. A. Woodward.

Upon the invitation of Mr. Curley, of the New Cornelia Copper Company, Ajo was selected for the spring meeting of the chapter.

The mining industry of the state decided to sponsor a memorial program for the next Greenway Field Day. This field day is held annually at Phoenix, Ariz., in memory of General John C. Greenway. The contestants come from the public schools all over the state. The publicity pages of the memorial program will be devoted entirely to the mining industry of the state and will be dedicated by the Arizona Chapter.

level to a depth of 1,250 ft. With the deepening of the shaft the mine is to be placed on a production basis.

H. R. Lathrop, of New York, president of the company, who recently visited the property, states that the additional depth of 400 ft. will make it possible to block out approximately 150,000 tons of additional ore. If the deep ore holds up in quantity and character, a new shaft may be constructed. The Sheldon mine is equipped with a 200-ton mill.

a request that they use their best efforts towards repealing all provisions of the income tax laws requiring such taxes to be paid on the business of mining and producing gold.

Whereas the acquisition of title to lands bearing deposits of precious minerals in paying quantities is a question of great interest to the industry affected and to the area adjacent thereto; and

WHEREAS the present existing statutes of Congress and the regulations of the Department of the Interior and of Agriculture, relating to the patenting of such lands are becoming, each year, more complicated, thus discouraging prospecting and primary development of such deposits; and

Whereas it is possible to greatly simplify the procedure in perfecting title to such mines and deposits, and yet fully protect all rights and interests of the United States: Now, therefore, be it

Resolved by the Department of Mines and Mining of the Sacramento Chamber of Commerce, That the Act of May 10, 1872, be amended and existing regulations of the Departments of the Interior and Agriculture be modified to provide for a simple and direct procedure for perfecting title by United States patent to mining claims containing precious minerals, and that all statutes of Congress and all regulations of both said departments be so framed as to facilitate the work of obtaining United States patent to such claims and deposits.

WHEREAS there is a growing tendency in the West to add to the withdrawals of public lands and prohibit mining thereon or to restrict mining to such a degree as to make prospecting and mining difficult if not impossible; and

WHEREAS by such action on the part of the Federal Government development of mineral deposits on the public domain is prohibited altogether in those areas withdrawn; and

CALIFORNIA ORGANIZATION SUGGESTS LEGISLATIVE REMEDIES FOR MINING

DUR resolutions recently adopted by the mining department and the Board of Directors of the Sacramento Chamber of Commerce are designed to remedy by national legislation some of the adverse conditions affecting the mining industry, which problems are now before Congress for consideration at the coming session.

California's precious metal miners, who are hardly able to operate and have had to close down mine after mine because of present conditions are most vitally interested in these measures. The passage of legislation suggested should not only assist those properties already operating but will be a tremendous encouragement to the opening up of new properties. The resolutions follow:

Whereas the gold mining industry in California is operating under severe and adverse handicaps, chief among them being the high cost of production and the rising tide of taxation in various forms; and

Whereas the gold produced has a fixed and permanent market price in that it is the standard of value for all

commodities throughout the world; and WHEREAS the development of new gold producing properties and further development of low grade deposits has been greatly retarted and in many instances stopped altogether because the costs of production exceed the standard values extracted; and

Whereas the annual output of gold in the United States is decreasing, the supply on hand is being lessened, and its use in the arts and sciences is being increased, thus necessitating increased production: Now therefore, he it

production: Now, therefore, be it

Resolved by the Department of
Mines and Mining of the Sacramento
Chamber of Commerce, That the income
tax on gold be repealed and that all income taxes on or relating to gold production, output and extraction be entirely removed and repealed, and that
the business of mining and producing
gold be allowed and permitted to be carried on without the imposition of any
income tax under any guise whatever;
and be it further

Resolved, That copies of this resolution be sent to Senators Johnson and Shortridge, to Senator Tasker L. Oddie, chairman of the Senate Committee on Mines and Mining, and all representatives in Congress from California, with

THE NEW TAX BILL

The action of the House in reducing the corporation income tax rate from 131/2 to 111/2 percent undoubtedly will be approved by the Senate, although the bill may be delayed in the Senate two or three months. The rate features are fairly satisfactory to all classes of taxpayers, but the same can not be said of the administrative provisions.

The provisions relating to consolidated returns are repealed, effective as of January 1, 1929. Affiliated corporations are denied the right of offsetting losses of one corporation against profits of another in the group; the provisions of existing statute exempting from tax distributions from earnings or profits and appreciation in value accrued prior to March 1, 1913, is repealed; the provisions relating to determination of gain or loss in connection with reorganizations and transfers of property are not simplified, but are further complicated by the addition of some new matter; the provisions relating to waivers of the period of limitation upon overassessment and collection of the tax are amended, and are certain to be unsatisfactory; other changes of more or less importance are made in the administrative provisions affecting in one way or another the determination of tax liability.

The repeal of the consolidated returns provisions of existing statute will compel affiliated corporations to file separate returns after January 1, 1929. In the case of consolidated returns, all affiliated corporations are considered as a unit and are closed concurrently by the same auditor. Any differences of opinion which may arise between the bureau and the consolidated group in the course of the audit of the return may be adjusted at one and the same time for all companies involved, effecting thereby a vast saving of time and money both to the taxpayer and the government. Under the new bill instead of the entire examination being made under the direction of one revenue agent, each return will, in most cases, be placed in the hands of a different revenue agent for field examination, thereby rendering it very difficult to secure equitable and uniform treatment of similar items involved in the separate returns.

In explaining the repeal of the exemption from tax of corporate distributions from surplus accumulated prior to March 1, 1913, the report of the Ways and Means Committee states that inasmuch as over 14 years have elapsed since March 1, 1913, and as most corporations have distributed such surplus, it seems an appropriate time to eliminate this exemption in view of the resulting simplification. This explanation is not in accord with the facts. Most corporations, at least in the natural resources groups, and particularly in the lumber and coal industries, have not distributed the earnings or profits, and appreciation in value of property, accumulated by them prior to March 1, 1913. Then, too, Congress recognized surplus existing as of March 1, 1913, as capital, and should not at this late date change the rule and undertake to subject to the income tax any earnings or profits or appreciation in value of property that accrued prior to the ratification of the constitutional amendment authorizing such a tax.

Resolved by the Bureau of Mines of the Sacramento Chamber of Commerce, That it is the sense of this bureau that the Congress of the United States recognize this neglect of the mining industry and that appropriations for the benefit of mining be placed more nearly in pro-portion to the national wealth produced.

Copies of these resolutions were sent to Senators Johnson and Shortridge, to Senator Tasker L. Oddie, chairman of the Senate Committee on Mines and Mining, and to all representatives in Congress from California.

PERSONAL ITEMS

John H. McLean, general manager for the Oliver Iron Company of Duluth, Minn., and Mrs. McLean have arrived in Los Angeles recently where they will spend the winter.

Ray E. Thomas, who has been in charge of the zinc plant construction at Anaconda, Mont., for the Anaconda Copper Mining Company, is leaving for the Anaconda zinc properties in Poland.

Erle V. Daveler, general manager of the Butte and Superior Mining Company, Butte, Mont., was a recent visitor in San Francisco.

L. P. Robins, formerly superintendent for the Tonopah Belmont Development Company in Nevada and Arizona, is making his headquarters in Oakland, Calif.

Harvey S. Mudd, consulting engineer of Los Angeles, is on a professional trip to London and Cypress.

Howard McAdams, mining engineer, who has been in the employ of the Oliver Iron Mining Company at Eveleth, Minn., for 15 years, has taken a position on the Minnesota Tax Commission at St. Paul.

A. G. McGregor, consulting metallurgical engineer, recently visited Bisbee, Ariz., after spending five months in Africa, Belgium and Serbia. He has closed his offices at Bisbee and will remove his headquarters to London.

Edward M. Cook, vice president of the Ludlim Engineering Corporation of New York, has just returned from Central America. While there he inspected the property of the Guatemala Gold Dredging Company in Guatemala, and examined several placer prospects in Honduras. Mr. Cook will presently join Mr. Henry F. Le Fevre, who is now examining and these control in Colombia. amining gold placer ground in Colombia, South America.

E. E. Campbell, of Kingham, Ariz., at one time superintendent of the United Verde Extension Mining Company, re-

cently made an extended inspection trip of the Quebec gold-copper districts.

E. R. Cullity, metallurgical engineer with the Southwestern Engineering Corporation, Los Angeles, has left for New York, where he will be a received. York, where he will be associated with the eastern office of the company.

Clinton H. Crane, president of the St. Joseph Lead Company, has been elected member of the board of directors of

Phelps Dodge Corporation.
F. W. Bradley, of San Francisco, president of the Bunker Hill & Sullivan Mining & Concentrating Company, and of the Treadwell Yukon Company, Ltd., will visit the latter company's properties in the Sudbury, Ont., district early in Jan-

WHEREAS our state government, through Governor C. C. Young, has op-posed any further extensions of Na-tional Parks unless and until assurances government, are had that such extensions will not interfere with the development of natural resources, including mining, within

the areas affected: Now, therefore, be it
Resolved by the Department of
Mines and Mining of the Sacramento
Chamber of Commerce, That no further withdrawals of public lands nor any additions to present existing reservations or withdrawals be made by the Federal Government unless and until Congress shall have included in such withdrawals ample provisions permitting the widest development of the natural resources, including mining, within such areas.

WHEREAS the Federal Government appropriates annually four million dollars for mining in the United States and one hundred twenty-eight million dollars for agriculture; and

WHEREAS the mining industry in the United States produces annually six billion dollars of wealth, while agriculture, including the live-stock industry produces twelve billion dollars of wealth annually; and

WHEREAS while mining produces onehalf the national wealth of agriculture, it receives but one-thirty-second of the

national support; and
WHEREAS the United States Bureau of Mines is greatly hampered, in its effi-ciency reduced, its advancement re-tarded, and its scientific, research and preventive work is carried on under excessive handicaps because of inade-quate financial aid from the National Government, and the same holds true for all other governmental departments having to do with mining, including the Geological Survey: Now, therefore, be it R. L. Agassiz, chairman of Calumet & Hecla Consolidated Copper Company, returned recently to Boston from a business trip of several weeks abroad.

Carl Brewer, who has been superintendent of the Boeing mine at Hibbing, Minn., for the Cleveland-Cliffs Iron Company, will be transferred early in January to the Negaunee, Mich., district of the Marquette iron range. The company recently announced the surrender of the Boeing lease.

George P. Schubert, head of the civil engineering department at Michigan College of Mining and Technology, has resigned to accept the position of superintendent of the Michigan Smelting Company's plant at Houghton, Mich. He assumes his new duties January 1, succeeding F. I. Cairns, who is retiring. Mr. Cairns had been connected with the smelting plant since it was built in 1905.

A. B. Young, Utah metallurgical engineer, left the first of December for Peru, where he will act in a consulting capacity for the Cerro de Pasco Copper Corporation.

Robert J. Montgomery has resigned, effective December 31, as vice president and general sales manager of the Philadelphia & Reading Coal & Iron Company, and also as a director of the company. Mr. Montgomery has been connected with the Reading for 47 years.

It has been announced that Everett Drennen has tendered his resignation as president of the board of directors of the West Virginia Southern Coal Company and will devote his time to other business interests.

W. H. Cunningham, of Huntington, W. Va., vice president of the company, will assume the duties of the presidency upon the retirement of Mr. Drennen. Mr. Cunningham will continue as secretary of the West Virginia Coal Association. Frank Enslow, of Huntington, has been elected vice president in charge of operation.

H. T. Miller has been appointed general sales agent of the Lehigh Coal and Navigation Company, and E. E. Finn director of service, both appointments effective January 1.

Charles H. Mathews has been made chief electrical engineer of the Susque-hanna Collieries Company, of Wilkes-Barre, Pa., the anthracite coal mining division of the M. A. Hanna Company. Mr. Mathews was formerly with the Westinghouse Electric & Manufacturing Company at East Pittsburgh.

F. R. Wadleigh has been named chairman of the committee on marketing practice of the National Coal Association. The committee is collecting information on marketing practices in the use of classification.

R. Frank Chumley, formerly assistant statistician of the Industrial Commission of Utah, has taken charge of the new statistical and credit department of the Utah Coal Producers' Association.

Geo. Watkin Evans, consulting coal mining engineer, has recently completed a professional visit into the coal areas of central Illinois, Alabama, West Virginia, the anthracite fields of eastern Pennsylvania, and the bituminous fields of western Pennsylvania. He has just returned to his office in Seattle, Wash.

West Virginia Coal & Coke In Friendly Receivership—Reorganization Anticipated

A friendly receivership action designed to effect reorganization of the West Virginia Coal & Coke Co. was instituted early in December in the United States District Court at Charleston, W. Va. Judge McClintic, who signed the order for the receivership, named John C. Cosgrove, of Johnstown, Pa., president of the company; Goen C. Arnold, former president of the state senate, and Lee Ott, former state compensation commissioner, as receivers to operate the company's properties in the Logan, Kanawha, Elkins and Fairmont fields.

The bill of complaint, brought in the name of the Goodman Manufacturing Co., alleged the coal company was not insolvent but was temporarily embarrassed because of unsatisfactory marketing conditions in the industry. The action was termed "entirely friendly and designed to permit the company to tide over its present temporary embarrassment and to accomplish a sound financial reorganization to meet conditions now confronting the industry," in a statement issued by counsel for the plaintiff and the receivers. It was also announced the subsidiaries of the company were not involved in any way as to credit, operations or finances in the receivership.

INVESTIGATION OF COAL CLASSIFICATION

THE initial meetings of the three technical committees of the Sectional Committee on Coal Classification, sponsored by the American Society for Testing Materials, were held the latter part of November in the New York headquarters of the American Institute of Mining and Metallurgical Engineers. Dr. A. C. Fieldner, chief engineer, Experiment Stations Division, U. S. Bureau of Mines, is chairman of the Sectional Committee, and Harry L. Gandy, executive secretary of the National Coal Association, is secretary of the Committee.

In explaining the duties of the three committees, Dr. Fieldner said that the Committee on Scientific Classification was to make a study of the possibilities of formulating a system for the classification of coal, based principally upon its constitution, composition, and geological occurrence. He said that the Committee on Use Classification was charged with making a study of the possibilities in the development of such a classification if desirable and equitable-one that would be based principally upon the uses of coal and the commercial practice, but also would be correlated with the scientific classification in so far as such correlation might be desirable. Committee on Marketing Practice is, he said, to obtain, collect and correlate marketing practice on coals as it is connected with classification with the idea that this information would be available to the other two committees. The chairman of the Sectional Committee said that none of the subjects was being approached with preconceived ideas as to what was going to be done, but rather with a view to seeing whether or not any good could be developed from the investigations.

It was decided to hold the next meeting of the technical committees in New York City, March 29, 1928, and also that the meeting of the Sectional Committee on Coal Classification should be held on the evening of that date.

At the meeting of the Committee on

Scientific Classification, these officers were elected: H. J. Rose, chairman; W. H. Cunningham, vice chairman; and W. T. Thom, secretary. Other members of the committee present were: W. H. Fulweiler, F. R. Wadleigh, M. R. Campbell, George H. Ashley, C. E. Dobbin, the latter an alternate for Mr. Campbell. It was decided to name Mr. T. W. Harris, Jr., a representative of the National Association of Purchasing Agents, as a member of the committee, under the consumer classification. Subcommittees were organized as follows: On the nature, location and occurrence of the types of American coals; on the composition and properties of coal and methods for their determination and on proposed classification of coals.

At the meeting of the Committee on Use Classification these officers were elected: W. H. Fulweiler, chairman; Malcom MacFarlane, vice chairman; and Gilbert Francklyn, secretary. Other members of the committee present were: F. R. Wadleigh, S. B. Flagg, H. J. Rose, W. H. Cunningham, and George H. Ashley. The National Coal Association will be represented by two additional members, to be named shortly. It was decided that the committee should secure data on different uses of coal and classifications now in use and on what these classifications are based.

Organization of the Committee on Marketing Practice was perfected by the election of these officers: F. R. Wadleigh, chairman; E. W. Parker, vice chairman; and S. B. Crowell, secretary. Other members of the committee present were: W. H. Fulweiler, T. W. Harris, Jr., Arthur Kuppinger, R. H. Knode, and H. M. Ferguson. It was felt that the committee should collect information on commercial classifications and on marketing practices in the use of classification. It was decided to divided the country into marketing areas and to assign committee members to the job of getting the information necessary regarding the marketing practices in the several areas.

National Coal Association Sponsors Bituminous Coal Kesearch Conference

A conference of organizations interested in bituminous coal research has been called by Cnairman J. P. Williams, Jr., of the Kesearch Committee of the National Coal Association. Mr. Williams is vice president of the Melcroft Coal Co., with operations in Kentucky and Pennsylvania, and also of the Elkhorn Piney Coal Mining Co., with operations in West Virginia. Invitations have gone out to 28 organizations asking that they name two or more representatives to attend a meeting to be keld in the offices of the American Institute of Mining and Metallurgical Engineers, New York City, on Thursday, February 9, 1928. The list of organizations includes governmental bodies, societies of engineers, and organizations representing transportation interests and public util-

The thought is that the cause of research will be advanced by a conference of these organizations, all of which are more or less interested in research activities. There are several organizations whose research activities in coal are unrelated and which, the National Coal Association has been given to understand, would welcome an opportunity to participate in a conference looking to the development of a plan whereby all research activities might be coordinated. "Producers of bituminous coal are vitally interested in this particular subject," says Chairman Williams, who, in his letter of invitation to other organizations, stated: "We are not sponsoring a definite program. However, we are confident that a thoroughly constructive plan will be evolved out of the conference."

Previous to this conference, there will be a two-hour session, on the morning of February 9, of the Research Committee of the Association.

W. P. Tams Heads West Virginia Smokeless Operators

Maj. W. P. Tams, Jr., president of the Gulf Smokeless Coal Co., Tams, W. Va., was elected president of the Smokeless Coal Operators' Association of West Virginia at the annual meeting of the organization, which was held at the Waldorf-Astoria Hotel, New York City, December 8. Ralph Knode, president of the General Coal Co., Philadelphia, Pa., was elected first vice president. W. A. Richards, president of the Pemberton Coal & Coke Co., Bluefield. W. Va., was elected second vice president; and G. H. Caperton, president of the New River Coal Co., Charleston, W. Va., was reelected treasurer.

Anthracite Cooperative Association Organized

The Special Committee on Rules and Regulations, named by the committee of twenty-one, which was selected at the Anthracite Cooperative Meeting, held at Mount Carmel, Pa., November 9-11, met in the Chamber of Commerce offices at Hazleton on November 30. Officers were chosen, by-laws drawn together. and outlines of research, publicity, and legislative work prepared, which it was thought would aid the industry. These recommendations were submitted to the General Committee December 12.

The committee approved the recommendation that the permanent organization be known as the Anthracite Cooperative Association. Membership will be open to all individuals and societies interested in the welfare of the hard coal industry, whether members of the Miners' Union, operators, or public.

Officers chosen at the meeting on December 12 follow:

President, Dr. W. R. Buckley, president, Mount Carmel Chamber of Commerce; vice president, Ralph Weeks, Scranton Correspondence Schools; treasurer, C. W. Laycock, Wilkes-Barre; secretary, Roy Haines, secretary, Mount Carmel Chamber of Commerce.

New River Operators' Association Elects Officers

At the annual meeting of the New River Operators' Association, held at the White Oak Country Club, Mt. Hope, W. Va., early in December, M. L. Garvey, of Mt. Hope, was named as president. Other officers elected were: R. E. Taggart, vice president, Big Stone Gap, Va.; P. M. Snyder, Mt. Hope, treasurer, and S. C. Higgins, secretary.

Addresses were delivered by Harry L. Gandy, secretary of the National Coal



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An Early Worm In Danger

Association, and Holly Stover, of Washington, and there was a discussion of safety practices in the mines.

Members of the executive committee as named at the meeting were: G. H. Caperton, president of the New River Coal Co.; S. A. Scott, vice president of the New River Co.; M. L. Garvey, general manager of the New River Co.; William McKell, president of the McKell Coal & Coke Co.; R. E. Taggart, vice president, Stonega Coal & Coke Co.; Ernest Chilson, vice president, Raleigh Coal & Coke Co., and P. M. Snyder, president of the C. C. B. Smokeless Coal Co.

Transportation Committee: G. H. Caperton, S. A. Scott and J. C. R. Taylor.

Membership Committee: George W. Jones, Gilbert Snith and R. G. Morris.

S. A. Scott and G. H. Caperton, in addition to other officers, were chosen as members of the board of governors of the Smokeless Coal Operators' Association, and William McKell and Ernest Chilson were elected as members of the executive committee of the West Virginia Coal Association.

West Virginia Properties to be Sold Under Foreclosure

The properties of the Richland Coal Company, in Ohio and Brooke Counties, W. Va., are to be sold at Wheeling, W. Va., January 12, under a mortgage foreclosure, involving a bid of no less than \$750,000. The writ of sale is directed against the Richland concern, the West Virginia-Brooke Coal Company, Brooke Coal Company, the Salkeld Coal Company, and the Ferguson Coal Company. The sale includes coal mines, tipples, railway tracks, mine tracks, mine buildings, miners' houses, and all other structures and improvements, machinery, equipment, and rolling stock.

New Equipment at West Virginia School of Mines

A Jeffrey reversible mine fan, operated by a special General Electric motor, and a compact apparatus for testing of the amount of rock dust in mine air, have recently been added to the laboratory equipment of the School of Mines of West Virginia University. The fan is capable of moving 13,000 cubic feet of air per minute with a three-inch water gauge, and is arranged to give varying degrees of production. It will be used by advanced students in mining engineering for making tests. The rock dust tester bears a Bureau of Mines approval and is constructed so that a sample may be tested in a few minutes. The density of the dust is determined by volumetric methods and the inert or dry combustible matter in the air may be computed, ---

New Illinois Strip Mine to be Opened

A large strip coal mining operation is to be opened up soon not far from the city of Chicago by the Northern Illinois Coal Corporation. The mine is at Wilmington, Ill., and the corporation has 6,500 acres of land there from which it is estimated many thousands tons of coal can be obtained. The new strip mine will have a daily output of approximately 3,000 tons. It will be one of the three largest stripping operations in the country.

Otis S. Newton Dies

Otis S. Newton, vice president and general manager of the Sunday Creek Coal Company, died suddenly December 7 at Columbus. Ohio, as a result of complications following an attack of the flu. Mr. Newton was born in Erie County, Ohio, on April 4, 1881. He is survived by his parents, wife and two children. Mr. Newton first became associated with the Sunday Creek Coal Company in 1912, taking charge of their mining equipment with the title of mechanical and electrical engineer. He was very active during the reorganization and consolidation of the Buckeye Coal and Railroad Company and the Ohio Land and Railroad Company with the Sunday Creek Coal Com-

pany, and became general manager of the new Sunday Creek Coal Company in complete charge of all their properties. Following the death of the late John S. Jones, Mr. Newton was made a vice president and was in charge of all its opera-

Funeral services were held from his residence in the suburbs of Columbus December 9, and interment was made at Milan, Ohio, near his boyhood home. Scores of leading coal operators and miners attended the funeral.

Two Colliers for Berwind-White

Contracts are to be awarded shortly for the construction of two colliers for the Berwind-White Coal Mining Co. The vessels are to be the first new ships equipped with pulverized coal burning apparatus.

Hudson Coal Makes Survey

A survey of the coal in the Loree division mines of the Hudson Coal Co. has been completed by engineers of the company, and a budget has been made covering the cost of operation of the Loree division for the next 12 years. This will enable the company to know what coal can be mined, the cost of production, the motive power necessary and where the mining will be done.

Susquehanna Collieries Company Repairs Breaker Damaged by Fire

Record progress is being made by the Susquehanna Collieries Co. at Nanticoke, Pa., in repairing the damaged car dumper and drag line which handles the coal into No. 7 Breaker, coming from several underground workings. This dumper was destroyed by fire on the 24th of November, and 3,000 men were thrown out of employment. Workmen are now engaged in restoring highpowered transmission lines and steam lines, which were broken during the fire. Although this dumper was destroyed on the 24th, work was resumed at the colliery to 50 percent capacity on November 28, and shortly thereafter was at full capacity. A more serious fire was avoided in preventing the flames from reaching the breaker, which was only recently completed and is one of the largest operations of this company in the Wyoming Valley.

A large coal tipple is being constructed on the low grade branch of the Fennsylvania Railroad by the Keystone Mining Company. The tipple will have a capacity of 2,500 tons daily, and when completed will be one of the largest on the Allegheny division of the Pennsylvania.

A Summary of articles to appear during 1928 in The MINING CONGRESS Journal

National Association Activities:

(1) Bureau of Mines, (2) Geological Survey, (3) American Institute of Mining and Metallurgical Engineers, (4) American Petroleum Institute, (5) National Coal Association, (6) National Safety Council, (7) American Silver Producers' Association, (8) Anthracite Bureau of Information, (9) Copper and Brass Research Association.

(A series of articles showing what these associations are doing for the mining industry. The first appears in this issue.)

Workmen's Compensation:

A series of six articles by the men responsible for the administration of workmen's compensation laws.

Tariff:

(1) Synthetic Chemistry and the Tariff, (2) The Zinc Industry
With and Without Tariff Protection, (3) The Development of a Manganese Industry, (4) Magnesite and the
Tariff, (5) Developing a Tungsten Janustry.

Abor:

Labor:

A series of six articles on various phases of the labor problem.

The Gold Industry:

(1) Review of Gold History, Progress and Decline in the United States, (2) Rehabilitating the Hydraulic Mining Industry, (3) Legislation Proposed for the Gold Miner.

Marketing Minerals:

A series of six articles on the marketing problems of the copper, silver, coal, and lead and zinc industries.

Immigration:

A series of three articles by well-informed men.

Standardization:

A series of six articles each by an operator who has adopted standard mine practice.

Taxation:

A series of twelve articles by authorities on tax matters. The first by Mr. Fernald appears in this issue,

Oil Shale:

A series of twelve articles portraying the development, needs, and possibilities of the oil shale industry. Some of the papers well he presented by Dr. Gustaf Egloff, Prof. A. W. Hornberger, Prof. W. N. Logan, Dr. Roy Cross, W. R. Eaton, Delos D. Potter, and Dr. Victor C. Alderson.

Practical Operating Men's Department for Metal Industry:

- (1) MINING: Problems directly concerned with the mining department whether underground or open pit.

 (2) THE MINE PLANT: All problems in the construction and operation of the mine plant, i. e., power plant, shops, hoisting plant, etc.

 (3) THE BENEFICIATION OF ORES: Problems in the reduction departments, i. e., concentration, leaching and smelting.

 (4) INDUSTRIAL BELATIONS AND SAFETY: Including safety, employer recreation, pension systems, etc.
- safety, employe recreation, pension systems, etc. (5) ACCOUNTING, COSTS, PERSONNEL.

All of these general headings have been so subdivided as to give the widest range of discussion. Each issue will carry articles by practical operating men that will be of inestimable value in solving problems of production.

Practical Operating Men's Department for Coal Industry:

- (1) MODERN COAL TIPPLES AND CLEANING PLANTS: A series of twelve articles under this head will describe as
- many plants.
 (2) VENTILATION: Six articles on various phases of this

- problem.

 3) MINE ELECTRICAL PROBLEMS: Six articles.

 4) COAL MINE DRAINAGE: Three articles, including a discussion of the investigation on acid-resisting metals.

 5) HAULAGE SYSTEMS: Twelve articles covering as many methods of underground trainsportation.

 6) BRIQUETTING: Six articles.

 7) EXPLOSIVES: A distinguished group of articles to discuss this problem, including the discussion on the use of fiameless explosives.

 8) COAL-MINE SAFETY: A series of twelve articles on successful safety work. The first appearing in this issue.

 9) SUCCESSFUL MINING SYSTEMS: Twelve articles describing as many eminently successful systems.

New Breaker for Pennsylvania Coal Co.

A new breaker, costing half a million dollars, is to be erected at the No. 9 mine of the Fennsylvania Coal Co., at Pittston, Pa., replacing the old breaker which has been in operation for 25 years. Operations at the mine will not be affected while the construction is in progress. The present breaker has a daily capacity of 2,000 tons and a payroll of 1,500.

File Suit Against Phil. & Reading

Suit has been filed at Shamokin, Pa., against the Philadelphia & Reading Coal & Iron Co. by Frank Llewellyn, a banker, and Ida and Lillian Patterson to recover \$3,000,000 which they claim the concern owes them for coal taken from a culm dump which they claim was their property. The case dates back to 1872 when the fathers of the present plaintiffs leased a tract of land near Big Mountain in Coal township. The lease was for five years, but at the conclusion of that period it was extended for ten years. Plaintiffs say that 1,500,000 tons of coal have been taken from the dump by the coal company.

Discuss Anthracite Preparation

A meeting of executives of anthracite mining companies and independent operators was recently held in New York to discuss the question of preparation. A committee has been appointed to consider possible modifications in the present agreement as to standards of preparation. The committee includes Andrew J. Maloney, president of the Philadelphia & Reading Coal & Iron Corporation; W. H. Williams, vice president of the Hudson Coal Co.; and Alan C. Dodson, president of Weston, Dodson & Co.



© 1927, N. Y. Tribune, Inc. Shepherds' Working Season Is On

Dola-Penn Coal Co. Buys W. Va. Lands

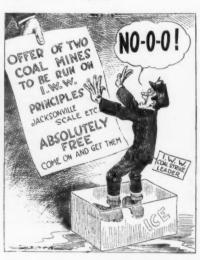
Two thousand acres of the valuable Pittsburgh coal seam, on the Short Line branch of the Baltimore & Ohio Railroad, 10 miles north of Clarksburg, W. Va., and known as the Dola field, have been purchased by the Dola-Penn Coal Company, of Pittsburgh, which has an operation at Dola, W. Va., from Mr. and Mrs. Harry Ainsworth, of Moline, Ill., and the Aryshire Corporation, a West Virginia concern. The tracts, 61 in all, are estimated to be worth around \$1,000,000.

Dr. I. C. White Dead

Dr. I. C. White, state geologist of West Virginia since 1897, and internationally distinguished for his work in the geology of coal, oil and gas, died November 25, 1927, in Johns Hopkins Hospital, Baltimore, following an apparently successful operation which had been performed on November 22, and from which he seemed to be rapidly recovering. The immediate cause of death was cerebal hemorrhage which was almost instantly fatal. Burial was made at his home in Morgantown, W. Va.

New West Virginia Operation

The Leckie Smokeless Coal Co. is constructing a large plant and 78 miners' houses preparatory to the development of coal lands purchased from the late J. J. Echols in the Greenbrier field of West Virginia. Coal from three seams will be handled over the one tipple now being built. Sidings have been installed, and the Sewell Valley Railroad will soon construct about a mile and a half of track to the mine. Work is under the direction of General Superintendent Williams of the company.



Rocky Mountain News Speaking Of Cold Snaps

Government Oil Shale Plant to Resume Operation

Congress has passed the deficiency bill which provides \$45,000 to enable the Bureau of Mines to resume its investigations of oil shales at its plant at Rulison, Colo., which was closed down last July when funds were exhausted. It is expected that \$80,000 additional, recommended in the regular budget, will be provided for the year beginning July 1, 1928, in the Department of Commerce appropriation bill to be acted upon in the near future.

Douglas Bunting Dies

Douglas Bunting, vice president of the Lehigh & Wilkes-Barre Coal Company, died early Thursday morning, December 15, in the Wilkes-Barre Hospital, from intestinal trouble. He had been both vice president and general manager of the company since 1924. Mr. Bunting was a native of Mauch Chunk, where he was born March 17, 1870, and was graduated from Cornell University. He began work in the mining industry as an engineer with the Mount Jessup Coal Company, but in 1894 went with the Lehigh & Wilkes-Barre Company and climbed steadily. Funeral services were held in the First Presbyterian Church, Wilkes-Barre Saturday, December 17, and burial was in Mauch Chunk Cemetery.

Michael Ratchford, for many years prominent in the United Mine Workers and at one time its head, died at Massillon, Ohio, December 11. During the term of George K. Nash as governor of Ohio he was state labor commissioner. Later he served as secretary of the old Pittsburgh Vein Coal Operators' Association, now known as the Eastern Ohio Coal Operators' Association.



Cincinnati Inquire

They've Come To Spend The Winter

WITH THE MANUFACTURERS



Type "SSU" Centrifugal Pumping Units

The type "SSU" Centrifugal Pumping Units recently brought out by the Allis-Chalmers Manufacturing Co. are combined motor and pump units of simple, compact, substantial design, the complete units being not much larger than a motor alone.

Both the pump and motor parts are built and guaranteed by the same manufacturer, so there is no divided responsibility, as well as insuring that the pump and motor ends are properly proportioned to work together as an efficient, reliable unit. The unit is close coupled by fastening the pump impeller to one end of the liberal diameter extended motor shaft, and the pump casing is bolted to a special integrally cast extension of one of the motor end housings. This makes the simplest possible construction and eliminates a base plate. coupling, and pump bearings, and does away with the possibility of misalignment between the pump and motor. The motor bearings, which are the pump bearings as well, are oversize Timkin tapered roller bearings, having ample thrust and radial capacity, and are mounted in dust and grease tight housings. These bearings have practically negligible wear, carry the thrust of the pump impeller and need only infrequent renewal of the lubricant.

The pumps are built in 1½-in. by 1½-in., 1½-in. by 1½-in., 2-in. by 2-in., and 2½-in. by 2½-in. sizes and can be used with 1, 1½, 2, 3, 5, and 7½ horse-power motors. The capacities handled range from 25 to 200 G. P. M. against heads of from 50 to 100 ft.

A paper on "Technological Problems of the Steel Industry" was presented by W. A. Forbes, assistant to the president of the United States Steel Corporation, before the American Iron and Steel Institute at its meeting in New York in October.

"Sealed Equipment" Locomotive

The locomotive illustrated is the new type "sealed equipment" cable reel gatherer locomotive of the General Electric Company. It is provided with two 30-h.p. motors, contactor control of the progressive series-parallel type, and a motor-driven cable reel with 450 ft. of double-conductor, concentric, rubbercovered cable.



Cable-reel Gathering Locomotive Provided with "Sealed Equipment"

The traction motors, the cable-reel motor, cable-reel collector rings, control, headlights, and all parts of the equipment with the exception of the trolley pole and the reel cable are completely enclosed in strong cases which are designed to prevent any gas explosions that may occur within these cases being transmitted to the surrounding atmosphere. With the exception of the short sections of cable leading to the motor, where flexibility is necessary, all wiring (see illustration) is enclosed in rigid pipe conduit securely anchored and provided with sealed fittings where it enters the various compartments. The fiexible motor cables are enclosed in heavy rubber hose, the ends of which are also provided with sealed fittings.

The progressive series-parallel control minimizes the necessity of running, to any appreciable extent, on resistance points as the motorman is forced to operate with the motors in series for all low-



Arrangement of Rigid Conduit and Gas-Tight Contactor Box with Cover Removed for "Sealed Equipment" Locomotives

speed movements. Consequently, there is very little running on resistance points, an important consideration in gathering work where much of the movement is at low speed. The locomotive has a drawbar pull of 4,000 pounds at five miles per hour.



New Trolley Tap for Mines

This new trolley tap, just presented to the mining trade, is said by its manufacturer to have a number of new safety features which will recommend it strongly to the mining industry. It's a safety device for the company against operating loss in mining routine, and also for the man on the job against physical injury.

A simplified device, in which number of parts has been reduced to a minimum, it is constructed so there is no chance for a man's hand to come into contact with a live hook. It's equipped with protective handguards. Furthermore, dowel pins on each terminal fit like a tongue in a groove which runs the length of the holder. Terminals and fuse element are kept from turning and twisting inside the case, and thus there is no chance for contact lips of the fuse to get twisted off. The fuse is renewable—is powder packed -hence the blow-out arc is smothered. Thick insulation provides maximum safety, and the tap is heavy enough, without being bulky or cumbersome, to stand up well under the hard treatment mine equipment usually receives in the mine.

The new O-B Trolley Tap, built for long, hard service, will prove of interest to those looking for a device which eliminates inconvenience and loss brought about by armature and field burn outs in cable reel locomotives, hoists, cutting and loading machines.

Combustion Gets \$2,500,000 Contract

George E. Learnard, president of International Combustion Engineering Corporation, announced recently the receipt of cable advises from his British subsidiary, International Combustion, Ltd., advising of the closing of an order with The Synthetic Ammonia and Nitrates, Ltd., at Billingham-on-Tees, England, for the largest high pressure boiler plant in the world, upon which work will proceed immediately.

Merger of Two Big Companies

Blower Company and the American Radiator Company brings together two of the oldest and best equipped companies engaged in the manufacture of heating, ventilating, air conditioning and mechanical draft apparatus and allied lines, forming what is undoubtedly the largest concern of its kind in the world. It is stated that each company will operate in the future much the same as it has in the past, as to name, personnel, business methods and management, the merger making possible important economies in buying, marketing, and manu-

New Drill Bulletins

The Sullivan Machinery Company has issued two new bulletins on new Sullivan drills. Bulletin 81-0: Sullivan Auger Ro. tators, Class "H-8." Eight pages. Describes and illustrates fully the new Sullivan Auger Drills for drilling very soft ore, coal or soft and broken rock, hardpan, frozen ground, etc. When it is desired to save expense of buying special drills, the auger may be equipped with a hollow piston and used with hollow drill steel and a water attachment for underground work.

Bulletin 81-Q. Sullivan "L-5" Medium and "L-3" Heavy Rotator Rock Drills: 8 pages, fully illustrated. The "L-5," 75 lb., and the "L-3," 97 lb. Rotator rock drills are intended for medium heavy rock drilling work on down holes where the drill is held by hand, or in very hard rock for deep holes, or for other severe drilling conditions in open-cut construction work, in quarries, or in mines. These machines will be found rapid and economical drillers. Copies may be obtained from Sullivan Machinery Company, 122 South Michigan Avenue, Chicago.

The Hazard Manufacturing Company, Wilkes-Barre, Pa., has published an interesting booklet, entitled "Fathers of Industry," giving a historical sketch of the Hazard Manufacturing Company and the Hazard Wire Rope Company.

Bulletin No. 27, issued by the Hardinge Company, New York City, and York, Pa.. deals with the Hardinge Unit Coal Pulverizer, and carries a description of the Unit System, gives specifications and dimensions, and is carefully illustrated with charts and diagrams.

"What is the Proper Position for the Detonator in a Charge of Explosive?" is the title of an interesting paper in the November issue of the Explosives Service Bulletin, issued by the Du Pont Powder Company, Wilmington, Del.

E. I. du Pont de Memours & Company The recent merger of the American has issued a review of the extent and progress of the du Pont explosives industry in America during the past five years. The review was given by J. Thompson Brown, general manager of the Explosives Department of the du Pont Company, Wednesday, December 7, on the occasion of the general convention of the company, known as the one hundred and twenty-fifth anniversary convention.

> The figures given by Mr. Brown as to the production of peace-time explosives show the enormous commercial use of these in the United States at the present time. These figures can be interpreted as an answer to the oft repeated question, "What do explosives manufacturers do in times of peace?"

> The du Pont Company, through its Explosives Department, is the largest manufacturer of commercial or blasting explosives in the world. Its total output for the year 1927, according to Mr. Brown, will be 207,000,000 pounds, a far greater amount than will be produced by any other manufacturer. One of its plants, the Repauno Plant upon the New Jersey shore of the Delaware River, is the largest high explosives plant in the world. It is one and one-half times the size of the next largest factory. This plant has a record output for the year 1926 of 66,000,000 pounds of commercial dynamite. Copies of the review may be obtained from the company at Wilmin-

Bulletin B, of the Kanawha Manufacturing Company, Charleston, W. Va., deals with wood-treating units for coal mines. This bulletin includes information of preservation, cost, life and methods of treating mine timbers. It gives specifications and is illustrated.

Allis-Chalmers Company, Milwaukee, Wis., has issued Bulletin 1826 on "Cyanide Plant Equipment." The bulletin is very concise, is fully illustrated, and is replete with information on this subject, being divided into five main sections, including "Cyanidation," "Preparing Ore for Treatment," "Application of the Cyanide Process,' "Cyaniding Machinery," "Cyanide Plant Data," and a section on "Undivided Responsibility." Each of these general subjects is subdivided and the bulletin on the whole contains a vast amount of valuable information.

The Ziv Steel & Wire Company, Chicago, announces new officers as follows:

G. F. Ziv, president; A. Ziv, chairman of the board; N. J. Hyslip, vice president; M. Foley, secretary; H. E. Ziv, treasurer.

A. F. Brunck has been appointed gereral salesmanager, with headquarters in

A bulletin recently issued by the Ingersoll-Rand Company, 11 Broadway New York City, contains much useful information on mechanical scraping, loading and hoisting with "Little Tugger" hoists. The machines themselves are described in detail, and the various types of scrapers, slides, and methods of mining are illustrated.

For the convenience of their customers in the Pittsburgh district Rollway Bearing Company, Inc., manufacturers of radial and thrust roller bearings, have opened a sales office at 614 Empire Building, Pittsburgh, Pa.

Mr. Samuel Farrell, who has been affiliated with the company for a number of years, with headquarters at Youngstown, Ohio, is in charge of the above office.

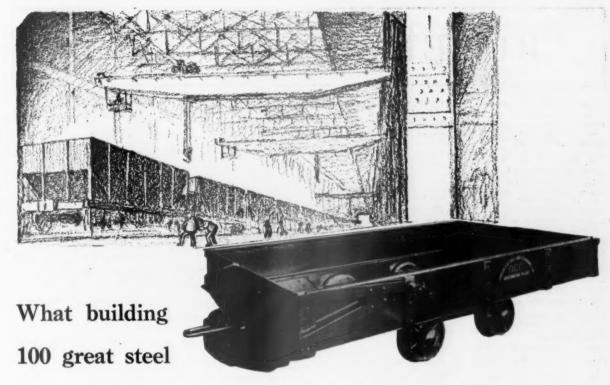
Ingersoll-Rand Rock Drill Accessories are described in a bulletin issued by the Ingersoll-Rand Company, New York City. The information presented includes hose, hose couplings, hose connections, water tanks, throttles, pilers, manifolds, filters, air line lubricators, mountings, steel, cone adapters, centralizers, and steel blowers. Copies may be obtained from the home office at 11 Broadway, New York City.

The following pamphlets have been issued by the International Nickel Com-

"Alloy Cast Iron Meets High Duty Requirements." (4 pages.) A practical, non-technical description of the improved physical properties secured by the addition of Grade "F" nickel to gray cast iron, with a tabulation of the physical and mechanical characteristics of the alloy iron as determined by physical laboratory investigations and tests conducted in the field.

"Bulletin No. 11. Notes on Machining Alloy Steel." (12 pages.) A presentation of exact data developed from recent exhaustive research clearly demonstrating that under conditions of properly controlled shop practice nickel steels may be more readily machined than carbon or other alloy steels of the same tensile strength. The optimum tool cutting conditions are fully discussed and the relative machinability of alloy and carbon steels is dealt with in detail.

"Instructions for Adding Nickel to Cast Iron." A chart illustrating the approved foundry practice for adding nickel and chromium in the ladle or cupola spout with a handy reference covering the types of castings for which alloy additions are recommended and are being successfully used. Printed on a substantial grade of cardboard.



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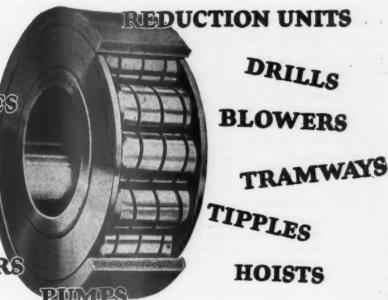
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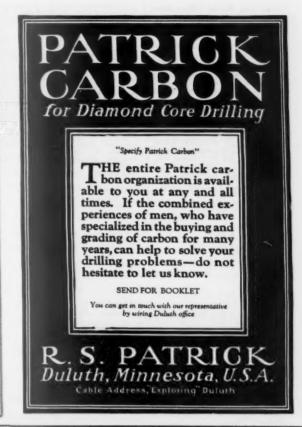
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kee, Wis.
American Coal Cleaning Corpn.,
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The Jeffrey Mfg. Company, 958-99
North 4th St., Columbus, Ohio.
Link-Belt Co., 396 W. Perahing Rd.,
Chicage, Ill.

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American Coal Cleaning Corpn., Welch, W. Va. The Jeffrey Mfg. Company, 958-99 North 4th St., Columbus, Ohio. Link-Belt Co., 300 W. Pershing Rd., Chicago, Ill.

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(Diamonds) for . S. Patrick, Sellwood Building, Duluth, Minn.

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CROSSOVERS Sweet's Steel Co., Williamsport, Pa. CRUSHER OILS

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Vulcan Iren Works, Wilkes-Barre, Pa. CRUSHERS, SINGLE &

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DOUBLE ROLL

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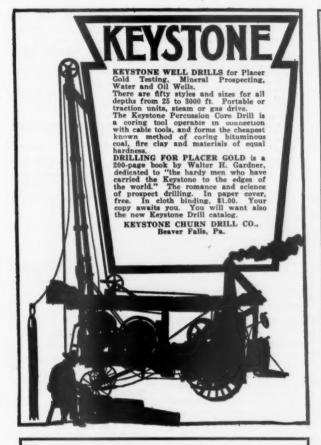
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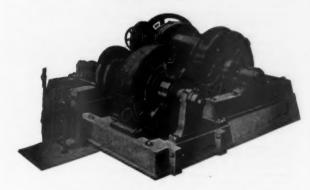
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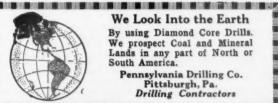
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